Final Report
# of the Minister's
Advisory Panel on Contaminated Sites

January 2003
Vancouver, BC

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Advisory Panel on Contaminated Sites

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The Honourable Joyce Murray
Minister of Water, Land & Air Protection
Room C, Rear of 431 Menzies Street
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Dear Minister:

I am pleased to provide the Final Report of the Minister's Advisory Panel on Contaminated Sites. The Panel welcomes the opportunity to meet with you or your staff to discuss any aspects of our Final Report.

Yours truly,

Margaret Eriksson,

Chair, Advisory Panel on Contaminated Sites

cc: Derek Thompson, Deputy Minister;
cc: Mike Macfarlane

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Executive Summary

Background and Process

The Panel was appointed by the Honourable Joyce Murray, Minister of Water, Land and Air Protection, to review Part 4 of the *Waste Management Act* and the accompanying *Contaminated Sites Regulation*.

As the basis for its deliberations, the Panel adopted six principles:

- Protect health, safety and the environment from significant actual or probable harm caused by contaminants.
- Promote a healthy and sustainable economy, and healthy and sustainable communities, through the best use of limited public and private resources.
- Establish a timely, sensible and scientifically based regulatory system.
- Ensure regulatory tools are proportionate with risk and based on a fair, legally defensible set of principles.
- Implement a clear, fair and accountable process that focuses government resources on planning, monitoring and enforcement, and private resources on achieving remediation goals.
- Promote proper management of substances and activities to reduce the likelihood that additional sites will become contaminated in the future.

The Panel met with more than 30 stakeholder groups and regulators from other North American jurisdictions (the latter by teleconferences) and received more than 60 submissions before submitting its interim report.

Following the release of the interim report, further consultations took place and over 45 additional submissions were received. This is the resulting final report of the Panel.

What Stakeholders Told the Panel

According to stakeholders, there are four main problems with the current system of regulating contaminated sites:

- The current system is unduly prescriptive, detailed and cumbersome, especially for sites with no actual or potential risk to human health or the environment.
- The Ministry charged with this program is understaffed to deal with its legislated tasks in a timely fashion and, because authority is delegated to regional managers, lacks consistency.
- Stakeholders are often driven more by fear of the absolute, retroactive, joint and several liability provision in the legislation than by a rational, cost-effective approach protecting human health and the environment.
- Lack of coordination and consistency between the federal, provincial and municipal levels of government creates numerous administrative difficulties, especially in dealing with "brownfields" and "orphan sites."

Key Changes Proposed

In order to achieve the underlying principles, the Panel recommends the following fundamental changes:

- Redefine what is considered to be a "contaminated site."

- Require remediation only where there is a significant actual or potential risk to human health, safety or the environment.

- Simplify and improve the regulatory process by:

    - Making it less prescriptive and more performance-based;

    - Allowing for the greater use of scientifically defensible professional judgment and common sense in managing contamination;

    - Creating a distinct regulatory agency;

    - Focusing government involvement on high-risk sites; and

    - Establishing a system of Licensed Environmental Professionals to oversee non-high-risk sites.

- Change the system from one driven by fear of liability to one that focuses on protecting health, safety and the environment from risks posed by a site.

- Provide clarity, certainty and closure with respect to liability and implement an early allocation mechanism.

- Promote a co-operative and responsive culture within the regulatory agency.

- Encourage redevelopment of brownfield properties.

- Establish a dedicated, self-sustaining fund that will:

    - Provide incentives for brownfield redevelopment;

  - Pay for orphan sites (those for which no party is responsible) or orphan shares (those sites where there is no responsible party for a portion of the contamination);

  - Fund regulatory services; and

  - Develop science-based solutions.

- Allow for industry-specific solutions for at least the following industries:

  - Petroleum storage tanks and service stations;

  - Dry cleaners;

  - Wood preservers; and

  - Mines.

- Expand the use of environment management systems to prevent future contamination.

- Encourage municipal, provincial and federal governments to develop a common approach for managing contaminated sites in the province.

Many of the proposed changes are inter-dependent. For example, without a dedicated self-sustaining fund, other key proposals would be impossible to carry out. Also, implicit in the proposed changes is that the dedicated fund cover any costs generated by future amendments to numerical values where prospective purchasers and those providing remediation have been given closure of liability based on current standards. This is a particularly innovative step, but one that we believe will yield much better decisions regarding remediation, especially of brownfield sites.

A View to the Future

The Panel hopes to see, arising from these recommendations:

- A continuing proactive effort by all stakeholders to prevent future contamination.
- A regulatory framework that is cost-effective and flexible enough to recognize scientific advances both in industry's knowledge of potentially harmful substances and in technical methodologies to deal with contaminated sites.
- A quasi-independent regulatory agency that stakeholders are confident protects human health and the environment and allocates funding in a rational and transparent process.
- A professional body that the public is confident conducts its work to a high standard and creates, both within the regulatory agency itself and in the private sector, an atmosphere of expanding knowledge of best practices.
- A climate in which all stakeholders act in the best interest of human health and the environment, and are not motivated simply by liability concerns.

1 Purpose and Scope of the Review

In May 2002, the Honourable Joyce Murray, Minister of Water, Land and Air Protection, appointed an Advisory Panel on Contaminated Sites to review Part 4 of the *Waste Management Act* ("Act")[1] and the *Contaminated Sites Regulation* ("CSR" or "Regulation").[2] In particular, the Panel was asked to review several key components of the contaminated sites system and to make "actionable" recommendations that would become the basis of a new policy framework for regulating contaminated sites in British Columbia. A primary consideration for the Panel was the Government's commitment to creating an efficient, effective, performance-based regime that would focus public resources on sites that pose a high risk to human health and the environment.

Areas reviewed by the Panel included issues associated with liability principles, funding mechanisms, government administration, standards and best practices in other jurisdictions.

As set out in the Terms of Reference, the review was triggered by stakeholder concerns that:

- The current contaminated sites system is:
    - Unnecessarily cumbersome, expensive and bureaucratic;
    - Overly prescriptive and stringent in application; and
    - Plagued by lengthy approval processes that must be completed before clean-up and redevelopment of property can occur.

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[1] R.S.B.C. 1996, c.482 as amended.

- Resources are being spent unnecessarily on lengthy administrative and legal proceedings and on consultant costs, rather than on remediating contaminated sites.

- The principles of absolute, retroactive, joint and several liability in the legislation lack fairness and have resulted in investors being fearful of investing in or redeveloping contaminated land in British Columbia, leading to the creation of numerous unproductive Brownfield sites.

As part of its initial consultation process, the Panel reviewed over 60 submissions from stakeholders and interested citizens. We also met or held conference calls with more than 30 stakeholder groups, including regulators in other jurisdictions.

The concerns described above were reiterated throughout the initial consultation process. Overall, the contaminated site system is dominated by fear of liability rather than by the primary goal of protecting human health, safety and the environment. British Columbia's contaminated sites regime is modeled on the American *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA). Interestingly, we found that the American jurisdictions we examined all faced similar problems with their CERCLA-based regimes as those being experienced in British Columbia. All had implemented or were considering reforms to: make their systems more timely and responsive to economic activity; ensure the best use of public and private resources to manage actual risk; achieve environmental and human health benefits proportionate with socio-economic costs; and create incentives to encourage Brownfield redevelopment. In addition, as more information was gained about the relative risks associated with contaminated sites compared to other environmental problems, the United States Environmental Protection Agency moved the issue of contaminated sites significantly lower on its list of top environmental priorities.

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[2] B.C. Reg. 375/96 as amended.

In our September 3, 2002 Interim Report to the Minister of Water, Land and Air Protection, we proposed that a new system for managing contaminated sites be adopted in British Columbia. The Minister then distributed the Interim Report for public comment. The Panel received over 45 written comments about various components of the report, and the Panel again met with several stakeholder groups to discuss and clarify their comments. We have since refined our initial recommendations and, in this Final Report, present our recommendations in more detail and document the results of the consultation process.

Section 2 presents the underlying goals of the proposed system. Section 3 provides an overview of the problems with the current contaminated sites regime. Section 4 contains a list of our recommendations. Section 5 through 19 provide a detailed discussion of our recommendations. Section 20 proposes changes that should be implemented immediately.

2 Underlying Goals of the Recommended System

As a foundation for its deliberations, the Panel adopted the following principles:

- Protect health, safety and the environment from significant actual or probable harm caused by contaminants.
- Promote a healthy and sustainable economy, and healthy and sustainable communities through the best use of limited public and private resources.
- Establish a timely, sensible and scientifically based regulatory system.
- Ensure regulatory tools are proportionate with risk and based on a fair, legally defensible set of principles.
- Implement a clear, fair and accountable process that focuses government resources on planning, monitoring and enforcement, and focusing private resources on achieving remediation goals.

- Promote proper management of substances and activities to reduce the likelihood that additional sites will become contaminated in the future.

3 The Need for Change

The contaminated sites legislation currently in place in British Columbia was designed to address what was presumed to be serious environmental and health problems associated with contaminants left behind by the more than 100 years of industrial activity in the province. Until the 1980s there was limited concern about contaminated sites and little, if any, relevant environmental regulation. Thus in 1997, the present comprehensive, very prescriptive system to investigate and remediate current or former commercial and industrial properties came into force in British Columbia, along with a new civil cause of action. The new cause of action reversed the buyer beware (*caveat emptor*) principle and tied liability to absolute, retroactive, joint and several principles. Since 1997, rezoning, subdivision, purchase and sale, financing, and demolition of current and former commercial or industrial properties have essentially ground to a halt until any suspected "contaminants" are identified, dealt with, and a Certificate of Compliance is issued for a property.

An estimated $250 million has been spent annually in the past few years in British Columbia to investigate whether there are substances of concern on properties. As well, it is estimated hundreds of millions of dollars have been spent annually to "remediate" sites, generally by digging up soil and disposing of it elsewhere. Additional costs associated with the time that properties are not in productive use while the investigation and remediation are taking place, and associated with funds diverted into related legal and administrative proceedings, have not been estimated.

A fundamental problem with this system is that it imposes the same prescriptive requirements and harsh liability regime on all sites regardless of the level of risk to human health or the environment. Both Ministry personnel and a committee of the Roster of Professional Experts (the Roster) told the Panel that fewer than 10 sites in British Columbia are contaminated to an extent that they pose any substantial risk.

These sites are currently being remediated. The vast majority of sites caught within the regime pose little, if any, risk.

This means that while the current system has had its successes — such as at the Britannia Mine site, where private and public funds are being used to correct the significant problem of acid mine drainage being discharged into Howe Sound — it has also had numerous difficulties. One of the most notable is that a great deal of public and private resources are being spent to investigate and remediate sites that pose little, if any, risk — while more serious environmental and economic problems go unfunded.

For example, the Panel was made aware of a site being remediated near Rock Bay, Victoria that may cost between $ 30 and $50 million. Studies have shown that the site does not presently pose a health risk and is acceptable for many land uses. In addition, the environmental impact on the Bay, if there is any impact at all, is minimal compare to the impact of the existing storm water outfalls that every day put additional contaminants to the Bay. As the planned remediation would be financed by two public agencies, a great deal of public money would be directed away other uses such as education and health care for a remediation which will achieve little if any benefit to human health or the environment. The risk posed by the existing property to workers and the immediate environment is negligible compared with the risks that would be created by construction activities carried out during the remediation program. The parties are only planning to remediate the site due to fears of potential liability under the current contaminated sites regime.

A Sample of What We Heard from Stakeholders

"When the contaminated sites provisions of the Act were introduced, the assumption was that there was an enormous environmental and health hazard in British Columbia which required comprehensive if not draconian powers on the part of the provincial government. The imposition of absolute and retroactive liability for activities that in many cases were sanctioned if not positively encouraged by past governments is an unprecedented and outrageously unfair exercise of government authority. Such a use of authority should be commensurate with the nature of the problem.

"Experience to date has indicated that there are very few contaminated sites that pose an active threat to human health or that pose catastrophic risks to the environment….

"Given that the nature of the problem is of several orders of magnitude less than would be supposed by the extraordinary exercise of government power demonstrated by the passage of Part 4 to the Act, the most appropriate starting place in a review such as this is whether the contaminated sites provisions are necessary at all…. If government funds are to be expended based on the urgency of the problem and on the basis of a cost benefit analysis, then all of the funds currently expended on the contaminated sites regime would be better directed toward addressing these two more pressing and urgent problems [contamination of the Fraser Valley air shed and effluent from major cities discharged into the Juan de Fuca and Georgia straits]." **David Perry, Singleton Urquhart**

"[T]he current Contaminated Sites Legislation has created a cumbersome, costly process for dealing with all sites regardless of their impact on health or the environment. There are likely only a handful of sites in the Province that pose a true risk to human health or the environment. The vast majority of contaminated site have little or no environmental impact. The Contaminated Legislation in its current form requires the allocation of significant public and private sector resources to address an issue that is relatively minor in terms of its overall impact. A sizeable portion of those scarce resources could, and should be used to deal with more pressing environmental and economic issues. One of the fundamental goals of the review process should be to identify ways to achieve a more appropriate allocation of resources." **Business Council of British Columbia**

In smaller communities and rural areas of the province, the problems associated with the regime are even more significant because property values are generally far below the cost of investigating or remediating a site. Approximately 60 - 70% of sites of concern are current or former gas stations. The average cost associated with investigating and remediating a retail service station is $400,000.[3] Rather than remediate and sell the property for another use, many owners leave sites to sit vacant, often as a fenced-in area in the centre of a small or large community. In other cases, small owner-operators keep selling gas for marginal returns because the cost of staying in business is less than that associated with decommissioning their tanks and dealing with problems of residual contamination.

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[3] Canadian Petroleum Products Institute.

Several important changes are required to address the concerns raised by stakeholders and the Ministry. These concerns relate to: problems with the current legislation (the Act and the CSR); problems with Ministry policies and guidelines; and problems associated with the process and approach by which the legislation and policies are being implemented.

Problems with the current legal framework relate to fear of liability, coupled with a lack of adequate closure mechanisms for both future civil liability and remediation orders. Stakeholders repeatedly told us that their business decisions are driven by a fear of liability rather than an assessment of which remedial option achieved appropriate levels of human health and environmental protection, as well as economic and social benefits. Most sites are remediated using the "dig and dump" approach regardless of cost or its appropriateness from an environmental or human health perspective because this approach is seen as the only way of eliminating future liability associated with the site. Banks are afraid to lend money to those wishing to buy a contaminated site, even if the site is demonstrated to present no ecological or human health risk. Investors are fearful of developing contaminated land in British Columbia. It is generally faster and less expensive to develop on a site that has never been used for development (i.e., a "greenfield" site) than to redevelop an existing commercial or industrial property and incur potential liability and delays associated with substances that exceed the CSR numerical standards or may exceed future standards.

Even on sites where studies show that the contaminants pose no risk to human health or the environment, prospective purchasers and tenants are reluctant to buy or lease because they are afraid of potential civil actions or remediation orders. For example, one developer of commercial and industrial properties, Anthem Industrial, told us about a site that has an approved risk management plan. Extensive studies have shown that the property poses no risk to human health or the environment.

Although the site has excellent road, rail and water access, prospective purchasers and tenants have repeatedly walked away from it because they are afraid of potential liability. As a result, most of the site has been unoccupied for several years.

Municipalities are also concerned about potential liability associated with contaminants that migrate onto neighbouring streets. The City of Vancouver, which owns its streets, attempts to impose additional obligations on those parties seeking to remediate contaminated sites. Most parties, however, refuse to accept these additional obligations. Consequently, even high-value properties in the City of Vancouver – such as a site across from Vancouver City Hall – sit empty. Given that British Columbia's draft *Community Charter* proposes to transfer street ownership from the Province to other local governments besides Vancouver, those municipalities may also adopt the City of Vancouver's approach. The result, we predict, will be even more brownfield sites in the province.

Stakeholders also expressed concerns about the inconsistencies that exist between the principles of liability in section 27 of the Act and those in section 35 of the CSR, and about the expense, multiple parties and practical limitations associated with both administrative proceedings and cost-recovery actions.

A Sample of What We Heard from Stakeholders

"Banks are a major stumbling block. Firstly they will not lend mortgage money because we are a 'contaminated site'. They will not even lend money so we can remediate the site. We cannot sell [the property] because the banks will not finance the buyer. We have to obtain a total Certificate of Compliance on the land and water sections of [the property]; if any part receives only a Conditional Certificate of Compliance then there will be no sale. The banks are apparently protected under the Act but they are holding up the flow of business by their adamant refusal to fund a perfectly legitimate business like ours….Perhaps some grandfathering clauses should be considered. Every business person in … Harbour bought their businesses in good faith, long before environmental cleanup was even an issue. We need to plan for the future, but does that mean crucifying those who unwittingly didn't meet current standards because they weren't envisaged?" **Small Business Owner**

"In addition, the City must emphasize the liability concerns associated with contamination, which has migrated onto City property i.e. street, land, sidewalk etc. and sometimes across a street to a neighbouring property.... Until this concern is addressed satisfactorily, a number of decommissioned gas station sites will remain undeveloped. It would be fair to say that as changes to the Local Government Act transfer the ownership of soils in streets from the Crown to Municipalities, such as is the case in Vancouver under the Charter, then this concern will be amplified throughout the Province." **Doug Roberts, Manager, Environmental Protection Branch, City of Vancouver**

The Panel also heard concerns from stakeholders about current Ministry policies and guidelines. Stakeholders were particularly concerned about the tendency of Ministry officials to view even draft policies as legal requirements. As well, Ministry officials were often seen to be focusing on whether their protocols and policies are followed "to the letter," rather than examining whether the proposed or implemented remedial approach achieves appropriate levels of human health or environmental protection.

A Sample of What We Heard from Stakeholders

We have been trying to cleanup for years, sell and retire.... We are confronted with one stumbling block after another, and the situation has become untenable.... We have also just been informed that [the property] is only a complex site because it is near the ocean and the Ministry doesn't have water sediment standards. That is, if [the property] were in the country with no water around it, we would not be having this problem. It has also been suggested that we need to sample the entire area of ... Harbour to ascertain whether our sediment samples are the same as the average throughout the harbour. Apart from the fact that this is an enormous, 100 year old working harbour, is the government really expecting every small business to go to the expense of sampling the entire harbour? This is unreasonable. Are we to wait for years for every eventuality or possibility to be transformed into a regulation? We anticipate we will be spending $300,000 by the end of this process. This is too much for a small business to bear.... We need an ironclad promise from the government that if we do this, this and this, that we will receive the Certificate of Compliance. It is simply not fair at this late date to change the parameters. We were assured that we were working towards an attainable goal, and to tell us $150,000 later that we are not, is simply not reasonable. A Conditional Certificate of Compliance is not an option because the banks will not finance a buyer." **Small Business Owner**

"Ministry staff treat their protocols and guidance documents as pseudo regulations. We have had additional costs and delays doing more studies that have not changed our approach to site management and remediation. We are concerned not to 'rock the boat' so we cooperate to maintain our relationship with BC Environment. The proponent should be allowed to use professional judgment regarding how many studies are necessary....

"Better consultation on draft guidance documents and criteria is required. The process should be streamlined to either approve of or finalize the draft guidance documents and criteria or to reject the draft policies. For example, in Victoria Harbour, Draft Sediment Guidelines have had a substantial impact on us. The Ministry has used draft sediment criteria as regulations and Transport Canada has spent $1.5 million assessing sediments on private lots....

"There is no cost-benefit regulatory impact analysis underlying the draft guidance documents and criteria. Using the BC draft criteria for contaminants in sediments, 80-85% of the sediment in Victoria Harbour is contaminated, versus 5% if the Puget Sound sediment criteria were applied....

"Just because a site is large in area should not necessarily lead to a conclusion that the site is high risk." **Transport Canada representatives' comments**

Finally, stakeholders expressed concerns on issues of process and, in particular, the way Ministry officials currently manage the contaminated sites program. Stakeholders and Ministry officials told us that the Ministry is under-resourced to manage its role and responsibilities under the current legislation. Too much attention is given to low- and moderate-risk sites; high-risk sites often do not get the attention they require. Stakeholders are also very concerned about inefficiencies in the system and the lack of timely response by government officials.

A Sample of What We Heard from Stakeholders

"Chevron made a decision to close a former gas station site in Burnaby 12 months prior to the termination of the lease to allow sufficient time for it to undertake remediation work and obtain a Certificate of Compliance. The site was determined to be a 'low to moderate' risk site and when the remedial work was completed, Chevron applied to the Ministry for a Certificate of Compliance using the Protocol 6 'fast track' process. The application was submitted on September 30, 2002, to allow time for the usual 7 working day 'fast track' turnaround and another 30 day contingency period to allow for the possibility that the application would be selected for a random audit. The application was selected for a random audit, however, based on previous experience, Chevron believed that the time they had allotted for the review and audit period was realistic. In early November 2002, Chevron was informed by the Ministry that the audit would not be completed until possibly the end of November (at the earlier) as Ministry officials had been assigned other priorities. As a result, Chevron was concerned that, due to such delay, it would not have the Certificate prior to the expiry of its Lease. This is problematic for Chevron since, if the audit requires further investigative/remedial work, Chevron will not have any right to access the property after the expiry of the Lease. Further, without a Certificate of Compliance, the Landlord may have difficulty re-letting the property thereafter….

"We support the Protocol 6 'fast track' process. We accept BC MWLAP's need to conduct random audits. However, we do not think it fair that such audit procedure, once commenced, should be subject to unspecified delays merely because of 'other priorities' in your office. This undermines the purpose of the 'fast track' Protocol 6 system, and goes to the very essence of the widespread frustration with the ever-changing timelines under the present contaminated sites regime." **Chevron Canada Limited**

"The contaminated sites program within the Ministry is understaffed given the 'staff intensive' way it is being implemented. Transport Canada has paid over $300,000 to the Ministry and has only received comments back on six of the twenty reports it has submitted. The comments that have been received are perfunctory 'initial' comments. Some reports were given to the Ministry in 1998 and some in 1999. Transport Canada paid $20,000 per report and is still waiting for comments on the other 14 reports. Fees should be paid for a timely, clear response that is binding in the Province." **Transport Canada representatives' comments**

Throughout this report, the Panel makes recommendations to address the concerns raised by stakeholders. Some recommendations for change relate to amending the existing legislation; other recommendations relate to revising Ministry policies and changing the regulatory process and approach to managing contaminated sites in British Columbia.

4 List of Recommendations

Section 5: Recommendations for the Definition of "Contaminated Site"

Replace the current definition of a "contaminated site" in section 26 (1) of the Act and section 11(1) of the CSR with a definition that incorporates an assessment of risk based on exposure pathways and receptors at a particular site and uses the numerical values currently in the CSR as "screening values" (i.e., the first step taken to identify whether there are substances of concern on a property).

We suggest the following definitions:

> "Contaminated site" means an area of the environment where a substance is present and is causing, has caused or is likely to cause an adverse effect to human health or the environment having regard to its current or intended use.
>
> "Adverse effect" is that which poses an unacceptable risk to human health or the environment.

The Minister (or appropriate delegate) should formally designate a site as a "contaminated site," similar to the approach used in other jurisdictions. The site owner and other potentially affected parties should be given notice of and be able to make submissions about the proposed designation.

Section 6: Recommendations for the Site Classification Process

Establish a new site assessment and classification process that differentiates between the following four categories of sites.

Category I Site - a site with substances in the soil or groundwater that do not exceed the "screening values." Regulatory involvement and remediation of Category I sites is not required.

Category II Site - a site with substances in the soil or groundwater that exceed the "screening values," but a screening level risk assessment indicates that the substances do not pose a risk to human health or the environment because they cannot reach a receptor. Regulatory involvement and remediation of Category II sites are not required.

Category III Site - a site with substances in the soil or groundwater that pose some risk, but a detailed risk assessment indicates that it is not an unacceptable risk for the site's intended use. Regulatory involvement is not required. Remediation, although not required for human health or environmental reasons, may occur voluntarily and independently for market-driven reasons.

Category IV Site - a site with substances in the soil or groundwater that pose an unacceptable risk to human health or the environment. A Category IV site requires involvement by the Ministry and, if human health issues are present, a Medical Health Officer. Only a Category IV site will be considered a "contaminated site" under the proposed system. The Minister (or appropriate delegate), acting upon the advice of Ministry staff and a Medical Health Officer, would formally designate Category IV sites as "contaminated sites." Remediation of Category IV sites is required to ensure that the sites do not present an unacceptable level of risk for their intended use.

Section 7: Recommendations for the Site Assessment and Remediation Process

Establish the new six stage contaminated site assessment and remediation process, which focuses regulatory resources on high-risk sites.

Establish a Scientific Advisory Board to:

- develop or identify a screening level risk assessment methodology that is both appropriate and cost-effective;
- reassess the current detailed risk assessment requirements to determine if appropriate information can be obtained in a more cost-effective manner.

Allow site assessment and remediation values to be crystallized for a particular land use when a Record of Site Condition is filed with the Ministry.

Post Records of Site Conditions in a combined site and land title registry.

Section 8: Recommendations for Licensed Environmental Professional System

Establish a stand-alone and independent system of Licensed Environmental Professionals (LEPs).

Allow a broader range of professionals than is recognized in the current Roster system to be recognized as LEPs.

Allow LEPs to oversee a wide range of activities on non-high-risk (Categories I - III) sites and work in conjunction with the Ministry on Category IV sites. LEPs would be responsible for site assessment, risk evaluation, remedial plan design, remediation, and the preparation of documentation to enable "no further action" letters to be issued for all categories of sites.

Section 9: Recommendations Regarding the Use of Numerical Values in B.C.

Use numerical values for soil, groundwater and sediment within the CSR solely as "screening values" (i.e., the first step to identify whether there are substances of concern at the site).

Section 9: Recommendations for Deriving Numerical Screening Values

Review the Contaminated Sites Soil Task Group (CSST) process for deriving standards to ensure that additional knowledge gained since 1995 is considered.

Reassess and amend the numerical values in the existing CSR Schedules 4 and 6 to ensure they have a sound scientific basis and represent the current level of knowledge.

Develop Schedule 5 matrix soil values for all Schedule 4 generic soil values.

Modify the Schedule 6 water quality standards for protection of aquatic life to uniformly reflect the Ministry's acceptable ecological risk threshold.

Recognize that the existing Schedule 5 matrix soil values for protection of aquatic life are limited by the rigour of the existing transport model, and update these values if a better approach is available.

Simplify the process for establishing that a site has background levels in excess of numerical screening values.

Create a database of soil and groundwater background levels throughout the Province.

Ensure that the screening values:

- are scientifically supportable to ensure safe, healthy communities and a sustainable environment;

- recognize aspects such as typical background levels in British Columbia and analytical capabilities; and

- effectively identify those sites for which further risk evaluation is required.

Ensure multi-stakeholder consultation takes place when screening values are developed with the assistance of either the Science Advisory Board or the existing Subcommittee on Standards.

Ensure that resources directed toward remediation achieve environmental and health benefits and consider social and economic costs.

Establish a realistic procedure to identify which additional substances require screening values to adequately protect human health or the environment.

Post decisions regarding site remediation objectives for non-specified toxic substances on the Ministry website.

Post all proposed numerical screening values and other new Ministry initiatives on the Ministry website, so all affected parties can have an opportunity to comment.

Section 9: Recommendations for Sufficient Resources

Ensure that the Ministry has sufficient resources to effectively participate in Canadian Council of Ministers of the Environment (CCME) activities and assess whether CCME proposed national criteria are appropriate to apply in British Columbia.

Ensure that the Ministry has sufficient resources to make the recommended changes to CSR Schedules 4, 5 and 6 as soon as possible.

Section 9: Recommendations for Modifying Screening Values

Delegate to the Minister, rather than the Lieutenant Governor in Council, the authority under the Act to set and modify CSR numerical values.

Section 10: Recommendations for Managing Remediation More Effectively

Encourage and accept the use of a cost-benefit analysis to evaluate remediation options.

Develop policies to facilitate acceptance by all levels of government of risk-based approaches to contaminated site management, with the objective of achieving the goals of protecting human health and the environment.

Encourage the use of alternative disposal options for contaminated soils to reduce the use of landfills; and establish secure landfills in British Columbia for metal contaminated soil.

Evaluate the method of classifying contaminated soil in the province to determine whether it is scientifically supportable and achieves the goals of protecting human health and the environment.

Streamline the involvement of various levels of government in the management of contaminated sites in the province by giving one level of government or agency the lead role.

Clarify the relationship between the provincial and federal governments to facilitate remediation of contaminated sites in British Columbia, notably those that are adjacent to or near fish-bearing waters.

Establish greater cooperation between the Province and municipalities to encourage and expedite site management and where necessary, remediation. As part of this, address municipal concerns about their potential liability.

Section 11: Recommendations for Defining Who Should Be a Potentially Responsible Person

Define those potentially responsible for a contaminated site in a manner that is consistent with the "polluter pay principle," so that those who caused or authorized the discharge that resulted in the contamination will be the primary responsible parties.

Include within the definition of potentially responsible person those who currently have control over the source of the contamination.

Define "owner" and "operator" in a way that reflects the ordinary legal meaning of these terms.

Incorporate, to a limited extent, in the definition of potentially responsible person the "beneficiary pay principle."

Allow remediation orders for contaminated sites to be issued to the newly defined list of potentially responsible persons when it is necessary to protect human health or the environment from unacceptable risks.

Section 12: Recommendations for Allocation of Liability

Replace the absolute, retroactive, joint and several liability scheme in section 27 of the Act with a more equitable set of principles for allocating liability, including the following:

- Liability should fall primarily on those who caused or authorized the contamination.
- Liability should be greater for those who are "true polluters" (i.e., those who

did not act in accordance with the legal requirements or industry practices of the day) than for those whose activities were appropriate or authorized at the time they occurred.

- The extent of a responsible person's liability for remediation costs should be in proportion to that person's degree of contribution to the contamination at the site.

- A responsible person should be responsible only for the physical portion of the site that it has contaminated, rather than for the greater area that may have been contaminated by others.

- The BC Land Remediation Fund (discussed in section 17) should pay for orphan shares at contaminated sites and orphan contaminated sites.

- Current owners who have not themselves contributed contamination or undertaken to indemnify another responsible person should have their liability limited to the difference between the purchase price and the value of the land after remediation.

- Potentially responsible persons should be able to raise legal and equitable factors (including rights to obtain relief under an agreement, in other legislation or the common law) as considerations in the allocation process.

Section 13: Recommendations for Resolving Disputes

Implement a single process for resolving disputes related to contaminated sites, replacing the multiple administrative and legal processes associated with the current system. Adopt alternative dispute resolution, which includes mediation and binding arbitration, as the process.

Section 14: Recommendations for Mechanisms to Provide Closure of Liability

Allow a single form of comfort document to be issued by the Ministry (or appropriate delegate) confirming that no further action is required and recognizing that the land is appropriate for a particular land use. The document may specify conditions to be maintained and should exempt those who participate in, or contributed to, site investigation and remediation (and future owners and occupants as long as the land use does not change) from liability under the Act associated with historical contamination, subject to limited exceptions.

Create a prospective purchaser exemption exempting the purchaser of a brownfield site from civil and regulatory liability associated with historical contamination in exchange for redeveloping the site and undertaking agreed-upon remedial activities.

Allow greater recognition of private contracts allocating civil and regulatory liability for historical contamination.

Provide for a definitive limitation period that terminates civil liability related to historical contamination.

Consider the recommendations of the National Brownfield Redevelopment Strategy Task Force for limiting civil and regulatory liability for historical contamination, to promote greater consistency in approach between British Columbia and other Canadian jurisdictions.

Section 15: Recommendations for the Role of the Regulatory Agency

Create a new regulatory agency to manage contaminated sites in British Columbia.

Develop an agency service plan that details the 10 key tasks for which the new agency would be responsible.

Conduct a full review of the funding requirements for the new agency and allocate sufficient funds for its operation.

Section 16: Recommendations for Remediating Brownfields

Encourage the use of risk management techniques where the use of the land will remain industrial and there is no threat to human health or the environment.

Amend the liability legislation to ensure that a current owner or a future user of a remediated brownfield site does not have to fear becoming liable for further clean-up should standards change after the date of the sale of the site.

Provide a mechanism for the rebate of property taxes or other economic incentives, where the economic value of the land does not otherwise allow for remediation and redevelopment. Reimburse municipalities from the BC Land Remediation Fund up to 50% of such tax rebates, and strengthen the liability exclusion for municipalities.

Use "seed money" from the BC Land Remediation Fund to encourage the petroleum industry to address the issue of orphan petroleum sites.

At the provincial level, work with the appropriate federal agencies to develop a more cooperative framework for managing contaminated sites and actively participate in and encourage the federal brownfield initiative currently in progress.

Section 17: Recommendation for Funding Mechanism

Establish a dedicated trust fund, the BC Land Remediation Fund, by April 1, 2004, to administer, monitor, support and encourage the remediation of contaminated sites in British Columbia.

Section 18: Recommendations for the Role of Municipalities

Strengthen the statutory protection for municipalities against liability for contaminated sites other than for contamination it causes.

Broaden the site remediation notification requirement to include, in addition to adjacent landowners, owners of rights-of way and utility corridors that may be impacted.

Develop a protocol with municipalities to allow for the removal and relocation of contaminated soil where necessary. Encourage the construction of facilities in the province, equipped to treat and dispose of various types of contaminated soils.

Create a mechanism whereby municipalities can access the proposed BC Land Remediation Fund to defray costs associated with incentives (e.g., the granting of property tax rebates) to encourage the private sector to remediate or redevelop brownfields.

Prevent municipalities from introducing their own regulations relating to contaminated site remediation, including the transfer of soils.

Section 19: Recommendations for Initiatives to Resolve Existing and Prevent Future Contamination

Maintain and enforce strong environmental protection legislation to minimize environmental harm and prevent new contaminated sites.

Encourage partnerships between the regulatory agency and specific key industries to develop codes of practice for chemical and product management and industry-specific site assessment and remediation, including a partnership between the regulatory agency and the petroleum industry to address problems associated with petroleum storage tanks.

Address the statutory overlap and inconsistencies relating to mine closure and remediation requirements and appoint a lead ministry responsible for mine closure, decommissioning and remediation issues.

Encourage the greater use of environment management systems.

Section 20: Recommendations for Immediate Changes in Policies, Procedures and Practices Affecting the Roster

Revitalize the examination and certification process to encourage more active participation in the Roster system by qualified professionals throughout the province.

Ensure adequate funding for the independent preparation, invigilation and marking of examinations.

Renew the procedures for the Roster of Professional Experts, particularly with respect to expanding eligibility to qualified professionals in other relevant fields.

Recognize the role of professional judgement when conducting audits of Roster decisions.

Address perceived conflict-of-interest problems.

Enable Roster members to conduct a broader range of site reviews by modifying Protocol 6 to reflect the Panel's recommendations for site categorization.

Develop the LEP process without delay.

Section 20: Recommendations for Immediate Changes in Ministry Structure and Resources:

Establish a new unit within the Ministry structure that provides for consistency in process and decision-making.

Provide sufficient financial and staff resources from base funding for the fiscal years 2003/04 and 2004/05 to adequately support the 10 main tasks of the new regulatory agency (outlined in section 15).

5 What is a Contaminated Site?

Currently in British Columbia, a site is considered "contaminated" primarily based on whether certain substances are present in soil, groundwater or sediment in excess of numerical values set out in the CSR.[4] This definition is a problem for three reasons:

(i) a definition based primarily on the application of a simple set of numerical values is overly simplistic and does not reflect whether a site would pose an actual risk to human health or the environment;

(ii) alternatives to numerical standards (site-specific and risk-based standards) are not commonly used or accepted in British Columbia; and

(iii) most other Canadian jurisdictions base their definition on whether a site poses an adverse effect or threat to human health or the environment.

(i) Numerical Values

While a single set of numerical values may be a convenient way to identify whether there are substances of concern on a property, they do not reflect whether a substance poses an actual or potential risk to the environment at a particular site. Nor, according to the Health Officers of British Columbia, are the CSR numerical values closely related to human health risks at most sites. As a result of the definition in section 26 (1) of the Act many sites that pose no risk to human health or the environment are labeled "contaminated sites" and a great deal of resources are expended to remediate these sites, even though the remediation efforts have little if any benefit to human health or the environment.

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[4] Section 26 (1) of the *Waste Management Act* defines "**contaminated site**" as "an area of land in which the soil or any groundwater lying beneath it, or the water or the underlying sediment, contains (a) a special waste, or (b) another prescribed substance in quantities or concentrations exceeding prescribed criteria, standards or conditions." See also section 11 (1) of the CSR.

A Sample of What We Heard from Stakeholders

"The current regulatory framework is overly prescriptive and places far too much emphasis on compliance with numerical criteria that are not closely related to human exposure or risk to human health. Rather than focusing on contaminant concentrations in soil, we believe it makes more sense to place the emphasis on whether humans on or off the site will be directly or indirectly exposed to contaminants present at the site." **Health Officers' Council of British Columbia**

"The driver for the Regulation is the concentrations of contaminants in soil. While this measure may have little relevance to environmental or human health impacts in the circumstances in which those contaminants are present, it is a convenient measurement and provides the added facility of a pass/fail test, which simplifies the process of enforcement and regulation. 100 is safe, 101 is unsafe; no basis in reality of course, but it facilitates getting that piece of paper." **Graham Kenyon, Independent Consultant**

"The process focuses on protection of assets based on meeting of numerical standards rather than to the true protection of human health and the environment." **Member of Roster of Professional Experts ("Roster")**

"Many representatives of industry continue to be concerned about the "wide net" cast by these standards, which have resulted in a number of sites being declared "contaminated sites" even though they pose absolutely or virtually no risk to human health or the environment." **Business Council of British Columbia**

(ii) Alternatives: Site-Specific or Risk-Based Standards

Although the CSR allows site-specific or risk-based standards to be used in place of simple numerical values, Ministry of Water, Land and Air Protection (Ministry) personnel told us that these alternatives are rarely used. (Site-specific standards, for example, have only been used four times since 1997.) Their lack of use appears to be related to practical limitations in the current system. One environmental consultant, for example, noted: "At this time, derivation of site-specific standards is rather onerous, and is only permitted for soil contaminants for which a matrix standards has been developed."[5]

The numerical values in Schedules 4 through 6 of the CSR are viewed by many stakeholders as being the Ministry's peremptory objectives. As a result, they have become virtually the sole basis of site assessment and remediation in British Columbia.

A Sample of What We Heard from Stakeholders

"Despite Ministry approval of a risk assessment (and the subsequent granting of an Approval in Principle) which showed that soil contamination in excess of current standards had no probable human health or ecological risk, our property continues to be labeled a "contaminated site". The considerable stigma associated with this label has scared away potential lenders, purchasers, brokers and tenants, even though our property has prime road, rail and waterfront access." **Anthem Industrial**

"A screening tool is needed to distinguish high risk sites from non-high risk sites. The risk ranking formula currently prescribed in Protocol 6 is not considered adequate for this purpose. Provisions to identify sites as high risk sites beyond a simple ranking system are warranted. Results of a source-pathway-receptor analysis could be considered as the basis for a sound, defensible means of determining the risk level at a site." **Ministry of Water, Land and Air Protection**

Even where risk assessment or risk-based remedial standards are used to demonstrate that there is no threat to human health or the environment, the property owner's problems are not over. In spite of the risk assessment or risk-based remediation, a property with a substance in excess of a CSR numerical standard continues to be labeled as a "contaminated site." The stigma and fear of liability associated with that label persist. In addition, a site remediated using risk-based standards is only eligible to receive a "Conditional Certificate of Compliance" rather than a full "Certificate of Compliance." A Conditional Certificate of Compliance is generally regarded as "second prize" by lenders, potential purchasers, or tenants. Even with a Conditional Certificate of Compliance, an owner still has a difficult time convincing a lender, buyer or tenant that the property is appropriate for the intended use. Consequently, instead of assessing the risks associated with a site and developing options to manage them appropriately, most owners simply dig up any material that may exceed the numerical standards and dispose of it elsewhere. It is easier to "dig and dump" - and thus be eligible for a Certificate of Compliance - than to remediate using risk-based standards. The problem is exacerbated by the Ministry's protocols for ecological risk assessment which, according to many stakeholders, are overly complex and expensive. Ecological risk assessments are perceived to be "a never-ending black hole."

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[5] Darren Schlamnp.

(iii) Other Canadian Jurisdictions

British Columbia's reliance on a regulatory set of numerical values for determining whether a site is contaminated or not, is out of step with the approach taken in the majority of other Canadian jurisdictions. As Appendix I shows, the majority of Canadian provinces classify a site as contaminated only if, for a given use, it poses an "adverse effect" or "threat" to human health or the environment. This approach is more meaningful than the current British Columbia approach, and is also in keeping with that recommended by the Canadian Council of Ministers of the Environment (CCME).[6] It also ensures that resources are directed toward sites that pose a true risk.

A substance will only pose a risk at a particular site if there is a potential ecological or human receptor and the substance can reach that receptor. This fundamental approach to evaluating a contaminant in reference to potential exposure pathways and receptors (illustrated in Figure 1) is well explained in the literature. It has also been recommended by the Ministry,[7] the CCME[8] and the Contaminated Sites Management Working Group.[9]

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[6] Interim Canadian Environmental Quality Criteria for Contaminated Sites, September 1991

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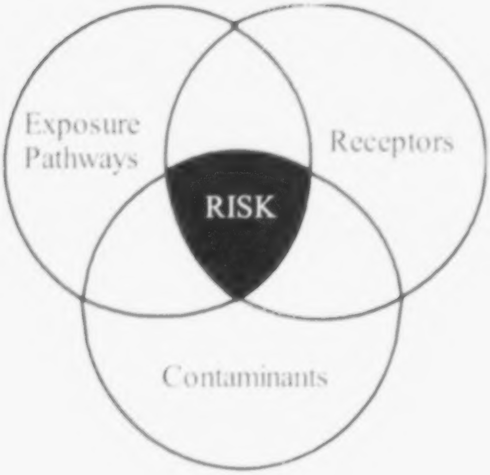
[7] BC Ministry of Water, Land and Air Protection, April 2000 "Facts on Contaminated Sites-Demystifying Risk Assessment."

[8] CCME, 1996 quoted in Kemper and Associates Inc. *Evaluation of Risk Based Approaches in Environmental Guidelines and Standard Settings* – Part I, 1997.

[9] Contaminated Sites Management Working Group, 1999 "A Federal Approach to Contaminated Sites."

Figure 1: Risk Identification Process



Thus, for a site to be defined as *contaminated* in a scientifically supportable way (i.e., the site poses a potential risk to human health or the environment), we believe that the CSR numerical values should be used in conjunction with a basic consideration of exposure pathways and potential receptors at a particular site.

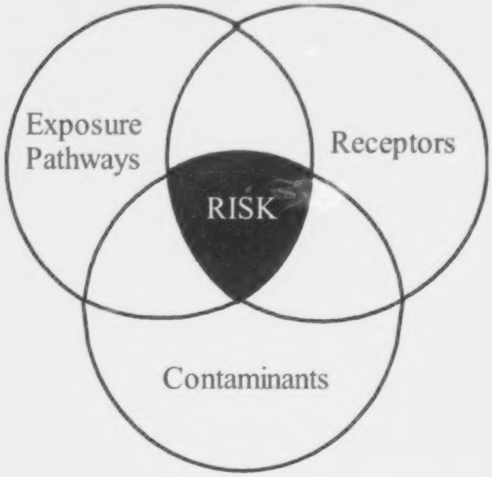
Recommendations for the Definition of "Contaminated Site"

Replace the current definition of a "contaminated site" in section 26 (1) of the Act and section 11(1) of the CSR with a definition that incorporates an assessment of risk-based on exposure pathways and receptors at a particular site and uses the numerical values currently in the CSR as "screening values" (i.e., the first step taken to identify whether there are substances of concern on a property).

We suggest the following definitions:

> "Contaminated site" means an area of the environment where a substance is present and is causing, has caused or is likely to cause an adverse effect to human health or the environment having regard to its current or

Figure 1: Risk Identification Process



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We suggest the following definitions:

> "Contaminated site" means an area of the environment where a substance is present and is causing, has caused or is likely to cause an adverse effect to human health or the environment having regard to its current or

intended use.

"Adverse effect" is that which poses an unacceptable risk to human health or the environment.[10]

The Minister (or appropriate delegate) should formally designate a site as a "contaminated site," similar to the approach used in other jurisdictions. The site owner and other potentially affected parties should be given notice of and be able to make submissions about the proposed designation.

6 How Should Sites be Classified?

Under the current contaminated site system, similar processes and the same amount of Ministry resources are generally required regardless of the level of risk a site poses to human health or the environment. The majority of stakeholders we heard from, as well as the Ministry, requested that the system be changed to allow a site to be managed in a way that is proportionate to its level of risk. The general consensus is that sites with little or no apparent risk should be managed in a timely, cost-effective manner with minimal Ministry involvement. This would enable Ministry resources to be directed toward overseeing the management of high-risk sites where there is actual potential for human health or environmental impacts.

A Sample of What We Heard from Stakeholders

"The level of clean-up of a contaminated property should depend on the nature and extent of the contamination and the intended use of the property…. A lesser standard of clean-up can probably be tolerated where expert opinion concludes that there is no added threat to human health or a risk that neighboring properties will be negatively affected." **Canadian Bankers Association**

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[10] An unacceptable risk to human health and the environment is one where a standardized risk assessment establishes:

- The calculated human lifetime cancer risk is greater than one in 100,000 for the given use of the site (as is currently recognized in section 18.1 (4) of the CSR); and
- The hazard index for humans, animals or plants is greater than one for the given use of the site (as is recognized in part by section 18.1(5) of the CSR and in the Ministry's Tier 1 Ecological Risk Assessment procedures).

"The level of "clean-up" should not exceed that which is justifiable. The issue is not the introduction of new contaminants but rather, whether there is sufficient justification for the removal of contaminants already in place.... The issue that requires clear thinking, however, is measuring the benefits of particular clean-up levels against readily accepted standards for environmental and human health risk and the costs associated with achieving those standards." **Edwards, Kenny & Bray**

"Once a contaminated site has been properly classified and determined suitable for industrial and commercial use, it could be placed into productive use and sold to another party.... If the site were to be reclassified for some other use, it would be the responsibility of the current owner to supply the data necessary to prove the property was suitable for the requested classification." **Canada Cedar Pole Preservers, Limited**

"We think the introduction of a risk assessment concept into the determination of 'contaminated site' status is desirable in order to achieve flexibility and to incorporate a 'common sense' approach into the system, even though we recognize that some degree of certainty is sacrificed in doing so. However we would not want it to be necessary to have to retain a risk assessment professional to determine the status of each and every site based on subjective criteria. This would add too great a degree of uncertainty and would be unnecessarily expensive and time-consuming." **Chevron Canada Limited**

The Panel agrees that the current contaminated site system must be changed so that sites are managed proportionate to the level of risk they pose to human health or the environment.

Prior to developing our site classification system, we examined how sites are categorized and managed in other jurisdictions. Many jurisdictions require a reduced level of regulatory agency involvement in less complex, low-risk sites so that the agencies can focus on high-risk sites.[11]

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[11] Examples include: the "simple site assessment and remediation program" in the State of Oregon; the "Voluntary Cleanup Program" in Washington State that can occur independent of state oversight;

We started by reviewing the risk ranking procedures developed by the Ministry,[12] the CCME,[13] the U.S. EPA and various Pacific Northwest states. All assign a risk "score" to indicate a site's level of risk. Each jurisdiction's approach varies in scope and complexity and no model is completely problem-free. For example, British Columbia's Protocol 6 is overly dependent on volumes of contaminated soil, and the CCME National Classification System can be readily modified by subjective assessments. In addition, U.S. jurisdictions told us that their scoring systems should be used with caution and cannot function as stand-alone tools. In the end, final decisions on risk levels in the U.S. jurisdictions appear to be dependent on professional judgment.

The Panel also considered the recommendations from several consultants, stakeholders and the Medical Health Officers of British Columbia, that a simpler system for assessing risk be developed.

In our Interim Report, we suggested that there be three categories of sites: no risk, limited risk and high risk. In response to comments from various stakeholders regarding potential problems with this nomenclature, we have modified our proposed site classification system.

Our risk classification process is based on an existing Ministry document "Demystifying Risk Assessment," which states that for a risk to exist, the following three basic conditions must be met:

- Substances of concern must be present;
- The substances must be capable of causing toxic or other adverse biological effects (i.e. the substances must be hazardous); and

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and, the State of Massachusetts where assessment and remediation of all but the most serious sites can be overseen by the private sector.

[12] Protocol 6 for designation of low and medium-risk sites.

[13] National Classification System.

- There must be a pathway by which humans, animals or plants (receptors) may be exposed to the substances of concern.

The Panel recommends that this basic framework should be incorporated in the problem formation stage in order to determine the risk category of the site. All supporting information should be documented to ensure the site classification process is completed in a defensible manner. Individuals providing a determination of a risk category should be well qualified or supported by other professionals with the appropriate expertise. Most sites would require a relatively simple process to designate the risk category. Other sites, such as those with non-aqueous phase liquids in bedrock, may require more complex assessment prior to designating a risk category.

Recommendations for the Site Classification Process

Establish a new site assessment and classification process that differentiates between the following four categories of sites.

Category I Site - a site with substances in the soil or groundwater that do not exceed the "screening values." Regulatory involvement and remediation of Category I sites is not required.

Category II Site - a site with substances in the soil or groundwater that exceed the "screening values," but a screening level risk assessment indicates that the substances do not pose a risk to human health or the environment because they cannot reach a receptor. Regulatory involvement and remediation of Category II sites are not required.[14]

Category III Site - a site with substances in the soil or groundwater that pose some risk, but a detailed risk assessment indicates that it is not an unacceptable risk for the site's intended use.[15] Regulatory involvement is not required. Remediation, although not required for human health or environmental reasons, may occur voluntarily and independently for market-driven reasons.

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[14] "Remediation" means the development and application of a planned approach that removes, destroys, contains or otherwise reduces the availability of contaminants to the receptors of concern.

Category IV Site - a site with substances in the soil or groundwater that pose an unacceptable risk to human health or the environment. A Category IV site requires involvement by the Ministry and, if human health issues are present, a Medical Health Officer. Only a Category IV site will be considered a "contaminated site" under the proposed system. The Minister (or appropriate delegate), acting upon the advice of Ministry staff and a Medical Health Officer, would formally designate Category IV sites as "contaminated sites." Remediation of Category IV sites is required to ensure that the sites do not present an unacceptable level of risk for their intended use.

Categories I through IV risk scenarios are shown in Figure 2.

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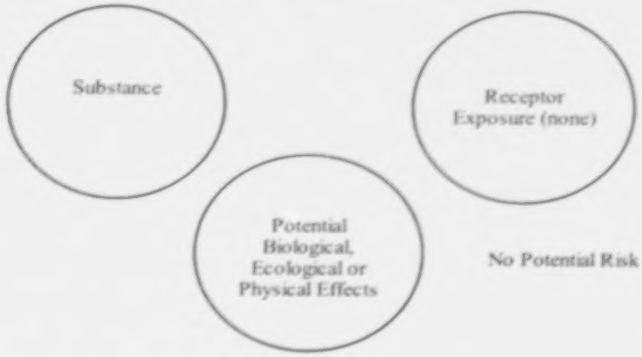
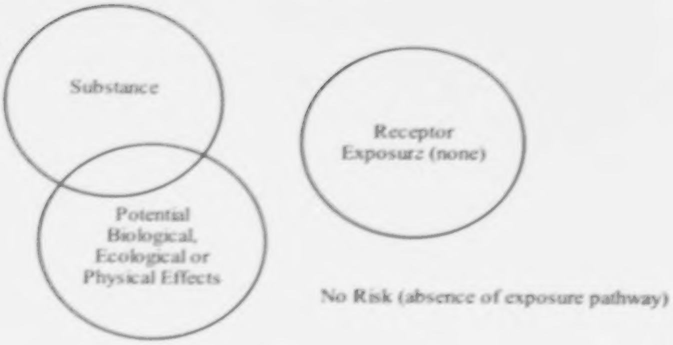
[15] The Panel recommends using the current CSR risk standard, that is, for given use of the site, an unacceptable risk exists if the calculated human lifetime cancer risk is greater than one in 100,000 and the hazard index for human, animal or plant is greater than one.

Figure 2 Categories I to IV Risk Scenarios for the Recommended Contaminated Site Classification System

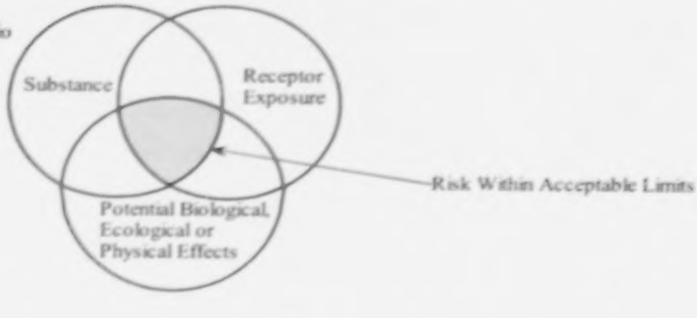
Category I Risk Scenario


Substance
Receptor Exposure (none)
Potential Biological, Ecological or Physical Effects
No Potential Risk

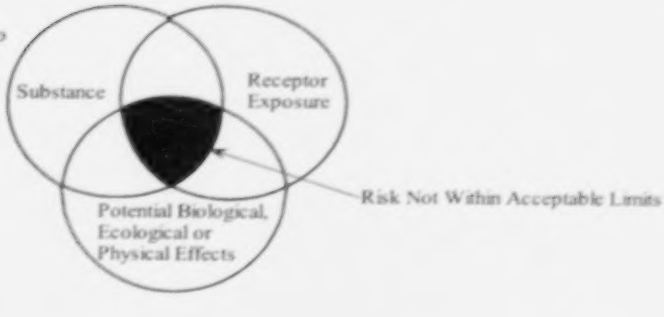
Category II Risk Scenario


Substance
Receptor Exposure (none)
Potential Biological, Ecological or Physical Effects
No Risk (absence of exposure pathway)

Category III Risk Scenario


Substance
Receptor Exposure
Potential Biological, Ecological or Physical Effects
Risk Within Acceptable Limits

Category IV Risk Scenario


Substance
Receptor Exposure
Potential Biological, Ecological or Physical Effects
Risk Not Within Acceptable Limits

Sites in Category II lack a means by which humans, plants or animals would be exposed to the contaminants. The substances of concern at the site therefore do not pose a risk for the specific land use.

Examples of Category II sites:

- Sites with subsurface contaminants in the form of insoluble metals (such as certain sandblasting grit materials) where there is no evidence that groundwater has been impacted by the material.

- Industrial sites with subsurface contamination below pavement, or buildings where there is no evidence of groundwater contamination or vapour emissions.

Sites in Category III are those where risk assessment demonstrates that the risks would be within an acceptable range for the intended use, if contaminants were left in place or if potential exposure was managed by implementing certain measures.

Examples of Category III sites:

- A site where the majority of groundwater wells do not show contamination above the screening levels; and for those wells that do, groundwater studies conclude that the contaminants are not likely to migrate or affect on-site or off-site receptors.

- A site that has substances in excess of the screening values, but there is no significant risk to human health or the environment if the site continues to be used for the same purpose (e.g., a shipyard sold for continued use as a shipyard).

- A site where field data shows there is no unacceptable risk (e.g., where bioassay data on terrestrial species shows no evidence of toxicological effects).

- A site where vapour levels are detectable, but are within acceptable exposure levels.

Although Category III sites are not required to be remediated, people may choose to implement risk management measures (ranging from "dig and dump" to institutional controls such as capping and/or monitoring) for market related reasons.

Category IV sites are "high-risk sites" or "sites with unacceptable risks." Stakeholders and other regulatory agencies suggested that Category IV sites would have one or more of the following characteristics:

- Contaminants are found (or have a high probability of being found) in on-site or off-site drinking water wells used for human or livestock consumption at concentrations above Canada's drinking water guidelines.[16]
- Volatile substances are moving (or have a high probability moving) through soil into indoor air or structures at levels of possible concern to human health.[17]
- People may come into direct contact with contaminants in the soil, and a risk assessment, indicates that the contaminants have real potential to cause health effects.[18]
- Hazardous products or sources are openly exposed (e.g., coal tar at the surface), highly mobile, or cannot be effectively contained.[19]
- Off-site migration of contaminants has affected (or could affect) utility lines (e.g., fibre optic cables) or health and safety (e.g., free-phase gasoline in sewer lines).[20]

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[16] Medical Health Officers of B.C. suggest this type of site be considered "high-risk."
[17] *Ibid.*
[18] *Ibid.*
[19] State of Washington, WAC 173-340-360 (2)(A).
[20] BC Municipalities.

- Off-site migration of contaminants has occurred, with potential for human health or ecological effects, (e.g., concentrations in the groundwater exceed chronic or acute impact levels for aquatic life and the groundwater is in the direct vicinity of a water body).[21]

- Vegetation or wildlife has been affected (or has to high probability of being affected).[22]

Remediation (removal, destruction, containment or management of contaminants) will be required for Category IV sites.

7 What is the Recommended Site Assessment and Remediation Process for Contaminated Sites?

In developing a site assessment and remediation process, the Panel was responding to the call from both the Ministry and stakeholders to allow a site to be managed in a way that is proportionate to its level of risk. Our proposed process allows sites with little or no apparent risk to be assessed and managed by the private sector in a timely, cost-effective manner with minimal Ministry involvement. Sites that pose an actual or potential risk to human health or the environment require Ministry oversight.

A Sample of What We Heard from Stakeholders

"The Business Council recognizes that municipalities have a legitimate interest in ensuring that when there is a significant change in use on a site, potential contamination on the site is identified and remediated. However, under the current regime, sites are often caught in the contaminated sites process prior to any significant change in use on the site. Accordingly, the Business Council suggests that the triggers for the contaminated sites process should be limited to applications for rezoning or development permits or similar municipal approvals where there is a change in use on the site to an entirely new use. Expansions of, or additions to existing facilities should not "trigger" the process." **Business Council of British Columbia**

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[21] Consulting community and Ministry.
[22] State of Alaska.

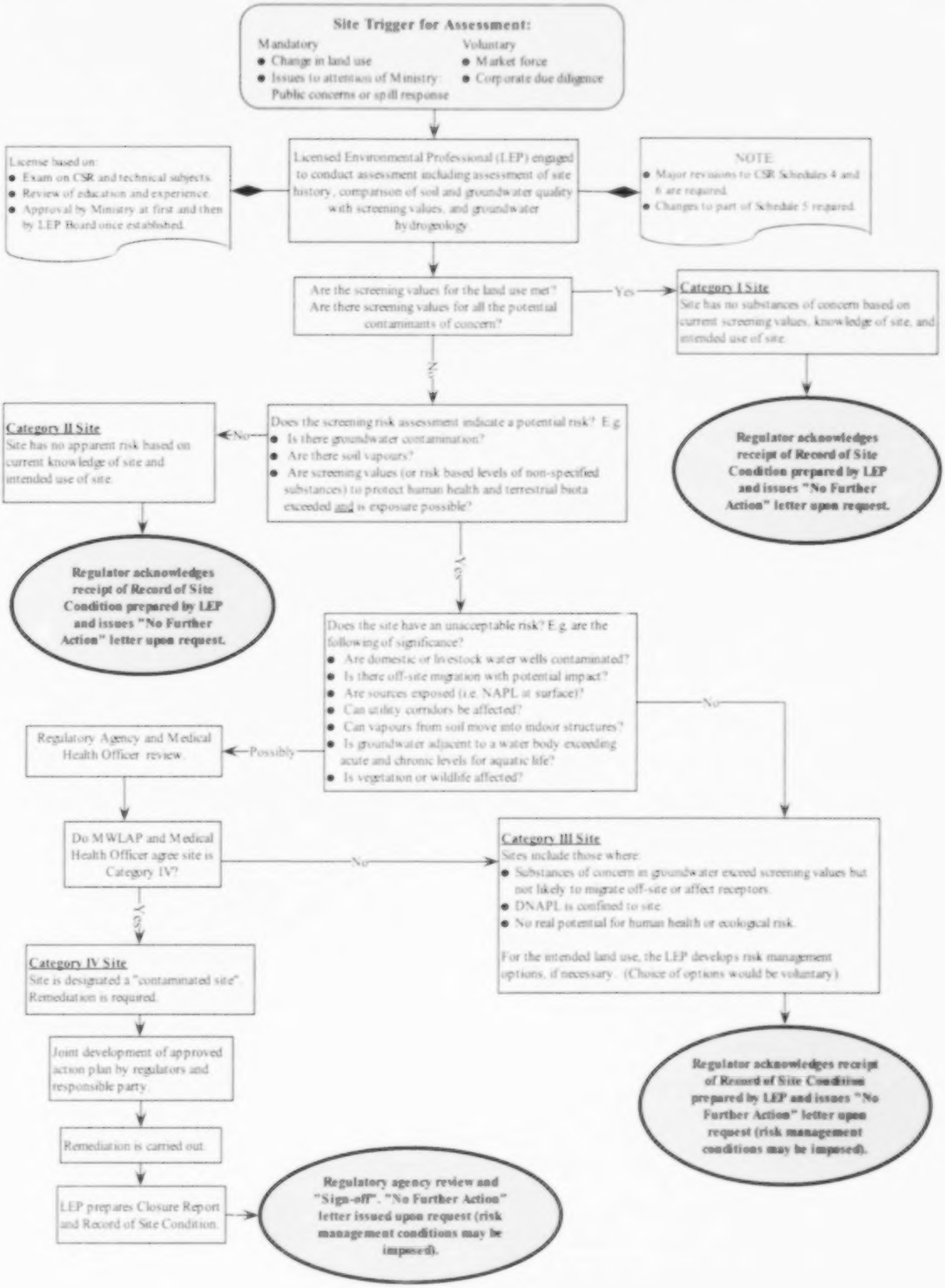
Stakeholders also requested an expeditious and reliable form of "closure" or "sign-off" from the regulatory agency or, for low and medium risk sites, from a Roster member. Once a site is deemed acceptable for a particular land use (according to the laws and policies of the day), they desire some indication that liability cannot be reopened, primarily if the numerical values in the CSR change or a subsequent landowner decides to change the land use.

The regulatory agencies in many jurisdictions issue some form of "comfort letter" indicating that, based on the available information, the site is acceptable for its intended use. In B.C. the current form of "sign-off" is a Certificate of Compliance. (As discussed in section 5, the Conditional Certificate of Compliance is not generally accepted by all parties.) In Washington and Oregon letters of "no further action" are provided. In Alaska a "site closure" letter is provided. In Massachusetts, a "Waste Site Cleanup Activity Opinion" for non-high risk sites is provided by a Licensed Site Professional, rather than the regulatory agency directly.

All these jurisdictions, however, allow the sign-off to be revoked if new information comes to attention of the regulatory agency that indicates an urgent need to intervene for environmental or human health reasons. Such re-openings have been rare in all jurisdictions including British Columbia. Personnel from Washington and Oregon told us that each had reopened approximately three to four cases based on receiving new information concerning significant off-site migration. The Panel's view is that a sign-off should only be reopened in exceptional circumstances, such as situations involving deceit, misrepresentation, or an emergency related to the presence of an unrecognized imminent risk.

The Panel's recommended site assessment and remediation process (see Figure 3) involves six basic stages.

Figure 3: Recommended Contaminated Site Assessment and Remediation Process


Site Trigger for Assessment:
Mandatory
● Change in land use
● Issues to attention of Ministry: Public concerns or spill response
Voluntary
● Market force
● Corporate due diligence
License based on:
● Exam on CSR and technical subjects.
● Review of education and experience.
● Approval by Ministry at first and then by LEP Board once established.
Licensed Environmental Professional (LEP) engaged to conduct assessment including assessment of site history, comparison of soil and groundwater quality with screening values, and groundwater hydrogeology.
NOTE:
● Major revisions to CSR Schedules 4 and 6 are required.
● Changes to part of Schedule 5 required.
Are the screening values for the land use met? Are there screening values for all the potential contaminants of concern?
Yes
Category I Site
Site has no substances of concern based on current screening values, knowledge of site, and intended use of site.
Regulator acknowledges receipt of Record of Site Condition prepared by LEP and issues "No Further Action" letter upon request.
No
Does the screening risk assessment indicate a potential risk? E.g.
● Is there groundwater contamination?
● Are there soil vapours?
● Are screening values (or risk based levels of non-specified substances) to protect human health and terrestrial biota exceeded and is exposure possible?
No
Category II Site
Site has no apparent risk based on current knowledge of site and intended use of site.
Regulator acknowledges receipt of Record of Site Condition prepared by LEP and issues "No Further Action" letter upon request.
Yes
Does the site have an unacceptable risk? E.g. are the following of significance?
● Are domestic or livestock water wells contaminated?
● Is there off-site migration with potential impact?
● Are sources exposed (i.e. NAPL at surface)?
● Can utility corridors be affected?
● Can vapours from soil move into indoor structures?
● Is groundwater adjacent to a water body exceeding acute and chronic levels for aquatic life?
● Is vegetation or wildlife affected?
Possibly
Regulatory Agency and Medical Health Officer review.
Do MWLAP and Medical Health Officer agree site is Category IV?
No
No
Category III Site
Sites include those where:
● Substances of concern in groundwater exceed screening values but not likely to migrate off-site or affect receptors.
● DNAPL is confined to site.
● No real potential for human health or ecological risk.
For the intended land use, the LEP develops risk management options, if necessary. (Choice of options would be voluntary).
Regulator acknowledges receipt of Record of Site Condition prepared by LEP and issues "No Further Action" letter upon request (risk management conditions may be imposed).
Yes
Category IV Site
Site is designated a "contaminated site". Remediation is required.
Joint development of approved action plan by regulators and responsible party.
Remediation is carried out.
LEP prepares Closure Report and Record of Site Condition.
Regulatory agency review and "Sign-off". "No Further Action" letter issued upon request (risk management conditions may be imposed).

Stage 1 – Triggering Event

The requirement to assess the site for potential contamination would be mandatorily triggered by one of the following situations:

(i) A change in land use (e.g., rezoning or change in use within a zoning designation) that may change the potential for humans or other environmental receptors to be exposed to substances of concern on the site;[23]

(ii) A issue of concern is brought to the Ministry's attention, and the Ministry requires the site to be assessed.

We also anticipate that various commercial transactions (such as the sale, lease or financing of commercial or industrial properties) could act as "voluntary triggers," where market forces require potential environmental concerns at a particular site to be investigated.

Stage 2 – Initial Site Assessment

A key player in our process is the Licensed Environmental Professional (LEP), who is responsible for categorizing the site based on its level of risk. (More details about the role of an LEP are provided in section 8.) The LEP conducts a preliminary site investigation, examining the property's history and, if there is evidence of potential contamination, determining whether the soil and groundwater have substances in excess of the numerical screening values. Direction of groundwater flow and vapour levels might also be examined.

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[23] This represents a change from the existing system. Currently the process is triggered by the filing a site profile, which is required in many circumstances not related to a change in land use. In our view, a site profile is not a particularly useful tool for identifying whether there are potential environmental problems associated with a property. There is no requirement that it be completed by a person who is knowledgeable, or is required to inform him or herself, about the potential environmental problems associated with the property. A better initial tool for assessing whether a property might have substances of concerns is the preliminary site investigation. In addition, 38 local governments have opted out of the site profile system, indicating that the site profile system is not working in much of the Province. We also note that no other Canadian province uses a site profile (or similar system) to trigger its contaminated site assessment and remediation process.

If soil and groundwater levels are found not to exceed the numerical screening values for the intended land use, the LEP would complete the Record of Site Condition, providing an opinion that, based on the information available, the site is a Category I site. Remediation of a Category I site is not required.

Record of Site Condition

A "Record of Site Condition" is a standard form that summarizes the environmental conditions at a site. Records of Site Condition are used in other provinces, including Ontario and New Brunswick, as part of their contaminated site assessment procedures.[24] They contain statements by a qualified environmental professional that site conditions are appropriate for current or intended use. They are sent to the regulatory agency in these jurisdictions and may be referenced through a registry.

Sending the Record of Site Condition to the Ministry would not be required for a Category I site. If it were sent, however, the Ministry would acknowledge it. Submitting the Record of Site Condition ensures that the numerical values at the time of the assessment become a baseline against which the environmental condition of the property would continue to be measured, until the land use changes. (The numerical values are thus crystallized as long as the land use is maintained.) We propose that Records of Site Condition will be posted on the existing provincial site registry or a combined site and land title registry. If requested the Ministry would issue a form of a "comfort letter" confirming that no further action is required on a site for a particular land use.[25] Filing of the Record of Site Condition would be a precondition to the issuance of a "no further action" letter.

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[24] Schedule A – Record of Site Condition (Revised September, 1998) for the *Guideline for Use as Contaminated Sites in Ontario*, Revised February 1997 (Ontario Ministry of the Environment, September, 1998) at http://www.ene.gov.on.ca/envision/decomm/rsc_sep.pdf;
Guideline for the Management of Contaminated Sites Record of Site Condition (New Brunswick Department of the Environment and Local Government) at http://www.atlanticrbca.com/data_eng/record_en_v12.doc.

Stage 3 – Screening Level Risk Assessment

If the soil or groundwater levels exceed the CSR screening values, the LEP would conduct a screening level risk assessment to categorize the site's risk level. The screening level risk assessment should have a defined format to ensure that the risk categorization process is thorough, defensible, yet still cost-effective. The Panel recommends that a Science Advisory Board should be formed, with duties that include developing or identifying an appropriate screening level risk assessment methodology. The Panel has been assured that a screening level risk assessment process can be developed or identified within a reasonable time-frame using British Columbia expertise. The screening level risk assessment process would analyze whether there is a means by which a substance of concern might reach and pose an unacceptable risk to a likely receptor (human, animal or plant) at or near the site. Questions such as the following would be asked:

- Where groundwater contains substances exceeding the screening values, can receptors be exposed to contaminants in concentrations in excess of toxicity thresholds?
- Are there soil vapours of significance?
- Are there substances in the soil in excess of the numerical values for protection of human health; and if so, is it likely that humans will be exposed to the contaminants, given the intended use of the site?
- Are there substances in the soil in excess of the numerical values for protection of plants or invertebrates; if so, is it likely that plants or invertebrates will be significantly exposed to the contaminants, given the intended use of the site?

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[25] See discussion in section 8 about delegating the function of issuing letters of no further action for Category I – III sites to LEPs.

- Is there evidence of impact on vegetation?

Stage 4 – Designation of Category II Sites

There is no potential for receptors to be exposed to contaminants in excess of the screening values - the site would be designated a Category II site. In the Record of Site Condition, the LEP would then state that, in his or her opinion, based on the available information, substances on the site do not pose an apparent risk to human health and the environment for the intended site use.

Because a Category II site does not pose a risk, there would be no statutory requirement to remediate or provide the Record of Site Condition to the Ministry. If it were sent, however, the Ministry would acknowledge its receipt, and, if requested, would issue a letter stating that no-further action is required.

A person may voluntarily submit the Record of Site Condition or remediate for market-related reasons. Submitting the Record of Site Condition allows the numerical values used to assess the site to be "crystallized." This has the following implications:

- The numerical values used at the time the Record of Site Condition is filed continue to be applicable, if a site owner later elected to remove all substances of concern from the site. (This provides certainty regarding remediation objectives.)

- "New" screening values for other parameters developed after the Record of Site Condition is filed would not be applicable, providing those contaminants do not pose an unacceptable risk to a receptor, triggering an imminent need to intervene.

- As long as the land use remains the same, further investigations of the site would not be required.

Stage 5 – Detailed Risk Assessment Indicates Risk within Acceptable Limits

If any of the questions in Stage 4 are answered with a "yes," the LEP would then have to use a more detailed risk assessment to determine whether there are unacceptable risks associated with the site. If the substances of concern could reach a receptor, but the potential risk to human health and the environment is not significant, then the site is considered a Category III site - acceptable for a given use, and possibly subject to certain specified conditions. If, however, the risk assessment indicates that the substance can reach and poses an unacceptable level of risk to a likely receptor,[26] it is considered to be a Category IV site (see Stage 6 below). Again, to ensure the process is thorough, defensible and applied consistently by all LEPs, detailed risk assessments should follow a defined, cost-effective format developed or identified by a Science Advisory Board. This would address stakeholder concerns about the cost and scope of risk assessments - particularly ecological risk assessments - that are currently performed using Ministry Protocols.

For a Category III site, the LEP would provide an opinion, as part of the Record of Site Condition, that the site does not pose an unacceptable risk for the intended land use. If certain measures are needed to be maintained in order for the site condition to be acceptable, the LEP would set those out in the Record of Site Condition. All Records of Site Condition for Category III sites should be filed with the Ministry so that conditions regarding any risk management measures could be noted in the Registry. For example, the notation may require that land use remain the same, or maintenance and monitoring of any risk-management measures (e.g. pavement to prevent potential exposure) continue. Or it might be noted that if future soil excavation occurs at the site, a reassessment of risk is needed to ensure protection of construction workers.

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[26] For the given use of the site, the calculated human lifetime cancer risk should be no greater than one in 100,000 and the hazard index for human, animal or plant no greater than one.

With respect to "crystallization," the following conditions would be applicable for a Category III site:

- The numerical values used at the time the Record of Site Condition is filed continue to be applicable, if a site owner later elected to remove all substances of concern from the site. (This provides certainty regarding remediation objectives.)

- "New" screening values for other parameters developed after the Record of Site Condition is filed would not be applicable, providing those contaminants do not pose an unacceptable risk to a receptor, triggering an imminent need to intervene.

- As long as the land use remains the same, further investigations of the site would not be required.

Stage 6 – Detailed Risk Assessment Indicates Unacceptable Level of Risk

A Category IV site, by definition, is a site with substances that pose an unacceptable risk to human health or the environment and thus requires Ministry oversight because it is a high-risk. These sites are "contaminated sites" and remediation is required.

Based on the site investigations, if the LEP's assessment indicates that a site may be a Category IV site, the responsible party must submit the investigations to the Ministry for review. The Ministry, in consultation with a Medical Health Officer where there is a potential human health risk, would review the results of the LEP's investigations, and determine whether the site is indeed a Category IV site. If the Ministry agrees that it is a Category IV site, notice that the site will potentially be designed a "contaminated site" would be given to other affected parties, including those affected by off-site contamination and the site owner. (Formal designation of the site a "contaminated site" may not be necessary if the responsible parties voluntarily respond appropriately.) The regulatory agencies will work with the LEP and responsible party to formulate any additional studies that are necessary and develop an appropriate remedial action plan.

Once the remediation is completed, the LEP would submit a closure report, in addition to the Record of Site Condition. If requested, the Ministry would issue a letter confirming that no further action is required and the site is acceptable for the intended use. The letter might also specify risk management measures to be maintained. Any land use restrictions would be noted in the Registry. The conditions of "crystallization" would be similar to those for Category II and III sites.

Responsible parties involved with Category IV sites would be encouraged to reach an agreement voluntarily regarding the required studies, appropriate remediation approach, target clean-up levels, remediation timetable, estimated remediation costs and proportionate share of responsibility and costs. As necessary, voluntary agreements would be reviewed and approved by the regulatory agency to ensure, among other things, that the remedial approach is appropriate.

If the responsible parties cannot reach a satisfactory agreement voluntarily, then one of the parties or the regulatory agency could require the outstanding issues be resolved in a timely manner using the dispute settlement mechanisms described in sections 13. Where there is a need to intervene to protect human health and the environment (on a known or suspected Category IV site), the Director should be able to issue a remediation order to one or more responsible parties.

Recommendations for the Site Assessment and Remediation Process

Establish the new six stage contaminated site assessment and remediation process, which focuses regulatory resources on high-risk sites.

Establish a Scientific Advisory Board to:

- develop or identify a screening level risk assessment methodology that is both appropriate and cost-effective;
- reassess the current detailed risk assessment requirements to determine if appropriate information can be obtained in a more cost-effective manner.

Allow site assessment and remediation values to be crystallized for a particular land use when a Record of Site Condition is filed with the Ministry.

Post Records of Site Conditions in a combined site and land title registry.

8 What is the Recommended Licensed Environmental Professional System?

Both stakeholder and Ministry representatives expressed concern that the Ministry lacks sufficient resources to fulfill its current responsibilities related to contaminated sites. Delays of six to 18 months in reviewing reports and approving remedial plans are common and, in one case, a delay of four years was noted. We also received copies of studies showing that regulatory approvals for petroleum service stations take 1.5 to 6 times longer in this Province than in Alberta or Ontario.[27] [redacted].[28]

We also heard concerns that the administrative costs associated with the current regime are too high. Many stakeholders called for a streamlined, cost-effective, sensible method for managing low-risk sites.

Stakeholders also had specific comments about the current Roster system, which was established to expedite the review process for low- to medium-risk sites in

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[27] Morrow Environmental Consultants, "Cost Comparison for Site Redevelopment – Petroleum Marketing Sites"; O'Connor Associates Environmental Inc. "Cost Comparison for Decommissioning of Typical Service Stations Sites."

[28] [redacted]

- develop or identify a screening level risk assessment methodology that is both appropriate and cost-effective;

- reassess the current detailed risk assessment requirements to determine if appropriate information can be obtained in a more cost-effective manner.

Allow site assessment and remediation values to be crystallized for a particular land use when a Record of Site Condition is filed with the Ministry.

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We also heard concerns that the administrative costs associated with the current regime are too high. Many stakeholders called for a streamlined, cost-effective, sensible method for managing low-risk sites.

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Morrow Environmental Consultants, "Cost Comparison for Site Redevelopment – Petroleum Marketing Sites"; O'Connor Associates Environmental Inc. "Cost Comparison for Decommissioning of Typical Service Station Sites."

BC Building Corp.; Transport Canada

British Columbia. While some stakeholders said that the Roster system has expedited the approval process for these sites, others described it as a administrative "bottle neck" that has increased investigation costs.

A Sample of What We Heard from Stakeholders

"The role of government should be limited to high-risk sites that represent a significant risk to human health or the environment. Private industry should be left to deal with other sites through reliance on expert professionals selected from the Roster.... It should be noted that government, industry and the general public rely on expert advice of structural and geotechnical engineers for the design of dams, bridges, and buildings. The potential for risk to human health and the environment related to the design and construction of these structures is far greater than the risk related to the remediation of low, medium and intermediate risk sites. We see no reason why the remediation process for such sites should be treated in a more cautious fashion than higher risk situations we deal with on a daily basis." **Urban Development Institute**

"The prescriptive and rigid requirements for reviews conducted by Roster professionals severely restrict the exercise of professional judgment. Work is undertaken merely to satisfy the requirements of the process even for low risk sites." **Roster member comment**

"The audit process for Roster decisions is extremely rigorous even for low risk sites and requires strict adherence to rigid procedures. The audit process does not provide a mechanism to recognize the exercise of professional judgment in the review process. Failure to satisfy the strict requirements for reviews could have severe consequences for the Roster member, including could removal from the Roster. As a result, Roster members are very stringent in their requirements for site reviews. This increases the monetary and time costs of the review process while not necessarily leading to greater protection of human health or the environment." **Roster member comment**

An expression that is sometimes used the rigidity of MWLAP's process for low to moderate risk sites is: "the watchdog is barking at the squirrels in the yard while the burglars rob the house." **Roster member comment**

"The potential liability of Roster professionals may limit the willingness of Roster members to extend their responsibilities to signing Approvals in Principle and Certificates of Compliance." **Roster member comment**

"The Roster membership is currently limited to members of the Association of Professional Engineers and Geoscientists (APEG) and the British Columbia Institute of Agrologists (BCIA) and does not reflect the multidisciplinary nature of contaminated site management." **Ministry of Water, Land and Air Protection**

"There are few actual practicing Roster members. Approximately 16 of the 30 Roster members actually conduct reviews. As a result, access to Roster members for province-wide issues is very restricted." **Roster member comment**

"A self-governing professional body for contaminated sites professionals is needed." **Ministry of Water, Land and Air Protection**

"The Roster system is labor intensive for Ministry staff, and Ministry involvement with the process may compromise the independence of a compliance assessment system." **Ministry of Water, Land and Air Protection**

"Roster members are not interested in 'small jobs' and are given *carte blanche* to dismiss such jobs as inconsequential." **Small Business Owner**

As discussed in section 6, many jurisdictions are streamlining the review and approval processes associated with less complex, low-risk sites. The private sector is generally managing low-risk sites, with government continuing to oversee high-risk sites. For example, in Nova Scotia, New Brunswick, Ontario and Quebec, qualified professionals prepare an opinion, which is often stamped or sealed by a member of an existing sanctioned professional organization. (Ontario is currently examining models for certifying qualified environmental professionals, possibly in conjunction with the Canadian Environmental Auditing Association, which has established a "Certified Environmental Assessor of Sites" designation.) In other jurisdictions, such as Massachusetts, West Virginia and Connecticut, separate professional associations have been created to certify those who are managing contaminated sites. The Panel favours the latter option, unless a national certification system can be established that also ensures that environmental professionals working in British Columbia are familiar with our regulatory requirements.

During the consultation process, we received suggestions from various stakeholders regarding the implementation of an expanded Roster system or a new LEP system. For example, according to the Canadian Bankers Association certifying environmental professionals and establishing standards for environmental investigations would give lenders, investors and regulatory agencies greater confidence. Other stakeholders suggested that the work of registered professionals (such as engineers and agrologists) should be accepted and that the due diligence practiced by professionals in the contaminated sites field is very similar to that in many other engineering disciplines, where outside review is not required for acceptance. In addition, one association recommended that approval agencies be empowered to accept a statement by a qualified environmental audit firm that site clean-up meets the intent of criteria.[29]

The Panel proposes that British Columbia adopt a model in some ways similar to that used by the State of Massachusetts. This approach would ensure that professionals responsible for managing sites with substances of concern have sufficient experience to do so effectively, and it would give the public assurance that these sites are being managed in a responsible manner. The Massachusetts model has been in place since 1993 and has proven effective.[30]

The Massachusetts Model

In the mid -1980's the regulatory requirements associated with identifying and assessing hazardous waste sites left Massachusetts in bureaucratic and environmental gridlock. The Department of Environmental Protection (DEP) was required to directly oversee assessment and clean-up work, but it lacked the resources to provide the necessary services. In 1990, the State asked a committee to recommend how clean-ups could be done more quickly without compromising environmental standards. Following the committee's recommendations, the State enacted legislation to expand the role of the private sector in the clean-up of most sites and to focus limited government resources on the worst sites. For lower risk sites, property owners and other potentially responsible parties now hire state-licensed private environmental professionals (Hazardous Waste Site Cleanup Professionals, generally called Licensed Site Professionals or LSPs) to evaluate site conditions and oversee response actions. The professionals provide a "Waste Site Cleanup Activity Opinion," which is filed with the DEP. The opinion says that the work complies with the state waste site clean-up law and regulations.

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[29] Canadian Home Builders Association.

[30] A 1998 independent evaluation of the Massachusetts Licensed Site Professionals program determined that the program had successfully enabled assessments and cleanups with minimal government related obstacles, and had allowed the Department of Environmental Protection to focus on the areas requiring government attention: *Hazardous Waste Site Cleanup Professionals 21E Program Evaluation Draft Generic Environmental Impact Report*, Prepared by the Massachusetts Department of Environmental Protection and the Board of Registration of Hazardous Waste Site Cleanup Professionals.

A Board licenses and regulates the LSP system. "Standard Track" applicants for an LSP license have at least a bachelor's degree in science or engineering, a minimum of eight years total professional experience, and at least five years of professional experience dealing with contaminated sites.[31] The Board administers a licensing exam, issues the licenses, ensures that LSPs meet the requirement for on going education, and disciplines individuals who do not uphold professional standards. The DEP randomly selects 20% of the sites overseen by LSPs for audit. Only an LSP can sign and stamp a Waste Site Cleanup Activity Opinion. As of September 2002, there were 518 LSPs in Massachusetts, which has a population of 6.4 million.

The Panel recommends the creation of a self-governing, independent Licensed Environmental Professional (LEP) system in British Columbia. The role of the LEP in the proposed site assessment and remediation process was discussed in section 7. There we recommended that, under the proposed LEP system, the LEP would perform the following functions:

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[31] For general information about the LSP Licensing Examination, see http://www.state.ma.us/lsp/examinf.htm.

- For Category I - III sites: carry out the site investigation, verify the risk level and prepare the Record of Site Condition.

- For Category III sites: in addition to the above, define site risk management conditions, if necessary.

- For Category IV sites: investigate and assess the site, and develop a remedial action plan on behalf of the responsible party jointly with the regulatory agency. Once the plan is approved and the remedial goals achieved, the LEP would also prepare the closure report and Record of Site Condition for review and approval by the regulatory agency.

The objective of the proposed LEP system is to allow the government to focus its resources on high-risk sites where they are most needed and to minimize government involvement at sites designated as having risks within acceptable limits. The use of LEPs would address many of the inefficiencies in the current system.

Recommendations for Licensed Environmental Professional System

Establish a stand-alone and independent system of Licensed Environmental Professionals (LEPs).

Allow a broader range of professionals than is recognized in the current Roster system to be recognized as LEPs.

Allow LEPs to oversee a wide range of activities on non-high-risk (Categories I - III) sites and work in conjunction with the Ministry on Category IV sites. LEPs would be responsible for site assessment, risk evaluation, remedial plan design, remediation, and the preparation of documentation to enable "no further action" letters to be issued for all categories of sites.

Discussion of Recommendations

(i) Principles Underlying the LEP System

We believe that the proposed LEP system should include the following elements:

- The LEP is the one entrusted under the auspices of the Act and CSR to provide and support an opinion in the Record of Site Condition that assessment and risk management options comply with the intent of the Act and CSR. The LEP must have the confidence of regulators and all stakeholders (including the public) that he or she is qualified to provide the opinion.

- Only a Record of Site Condition with an opinion provided by an LEP would be accepted by the Ministry.

- In the Record of Site Condition the LEP must confirm that services requiring an understanding of applicable scientific and engineering principles were undertaken by individuals qualified to perform such services. For example, if the LEP is not a hydrogeologist and the expertise in hydrogeology was required, the LEP must confirm that a qualified hydrogeologist performed the appropriate work. Much of the work that leads to an LEP's opinion may be performed by other professionals who do not have an LEP certification, but the LEP will be responsible for the opinion rendered.

- Professionals in the field of site assessment and remediation may continue to serve their clients or employers without a LEP designation. The fact that individuals are not LEPs should not reflect upon their technical capabilities. However where a Ministry acknowledgement is desired, the Ministry will require an opinion provided by an LEP.

(ii) Implementing the LEP System

In terms of implementing the LEP system, we have several recommendations relating to:

- (a) eligibility and licensing procedure;
- (b) governing body;
- (c) site assessment and risk management procedures;
- (d) documentation requirements and procedures;
- (e) audits;
- (f) delegation of government functions;
- (g) liability of LEPs;
- (h) out-of-province expertise;
- (i) conflict of interest;
- (j) roster system; and
- (k) interim organization.

(a) Eligibility and licensing procedures

A professional should be eligible for the LEP designation if he or she has a certain minimum number of years of relevant work experience and level of education, and passes an examination covering both technical and regulatory aspects. Continuing education should be required in order for an LEP to maintain his or her designation.[32]

The examination process for licensing LEPs should be given careful consideration.[33] The exam should cover: ethical and legal issues;[34] regulatory and policy requirements;[35] and technical expertise relating to contaminated sites assessment, management and remediation.[36] The exam could also contain a general section on technical aspects to be completed by all applicants, followed by optional sections relating to the individual's particular areas of expertise, e.g. toxicology, groundwater hydrogeology, or environmental chemistry.

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[32] The proposed model is based on procedures adopted in Massachusetts and West Virginia.

[33] Zapf-Gilje et al., 2002 "*Discussion Paper: Qualification Requirements for the Contaminated Sites Roster of Professional Experts.*" The authors suggested improvements to the examination process for the existing Roster systems and those findings along with the experiences of Massachusetts and West Virginia, should be considered in the LEP registration process.

[34] The APEGBC examination which addresses code of ethics, contract law and liability, and negligence and business associations might serve as a model for this section of the examination. Members of APEGBC would not have to take this portion of the exam.

Government officials responsible for managing contaminated sites should be required to undergo the same LEP qualification process as those in the private sector. This will ensure a high level of expertise in both the public and private sectors, as well as consistency in how law and policy are applied. The Panel believes that this expertise and consistency will provide assurance to all stakeholders that contaminated sites are being managed responsibly and fairly throughout the province.

Not just individuals in the engineering or geoscientist professions should be eligible for an LEP designation. Individuals with training and expertise in disciplines such as toxicology (including human health and ecological risk assessment), chemistry and biology can also become LEPs. This will increase the supply of LEPs to satisfy the demand.

The Panel believes the availability of a professional license may encourage individuals to enter the contaminated sites field.[37] We also anticipate that the recommended LEP designation process would encourage more active academic participation in the training of LEP candidates and greater involvement by the academic community, private sector and regulatory agencies in technical and scientific issues related to soil and groundwater contamination.[38]

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[35] Candidates must have an understanding of all applicable contaminated sites legislation, related policies and guidelines, and other environmental regulations.

[36] Candidates must have an understanding of basic concepts and methods in applicable scientific and technical fields related to site assessment, and management and remedial options sufficient to carry out their duties as a LEP.

[37] This result was experienced in Massachusetts when the state licensing process was established.

[38] The model currently in use in B.C. for "Engineers in Training" under APEG could also be considered for LEPs to encourage a wider range of interest among individuals to achieve designation as LEPs.

(b) Governing body

The Panel recommends that an independent, multi-stakeholder board (LEP Board) be established to regulate the LEP system. (The initial LEP Board could be established by the Province, but thereafter would be self-governing.) In addition to LEPs, the LEP Board could be made up of members from, for example, the general public, academia, regulatory agencies and private industry. The LEP Board would be responsible for licensing, auditing and disciplinary functions. Auditing a certain percentage of LEP conducted assessments would ensure that LEPs maintain high standards, are professionally accountable, and have the confidence of all stakeholders as they participate in the identification, assessment, management and remediation of contaminated sites in British Columbia. In the initial period when the LEP Board is establishing its auditing and disciplinary processes, the Ministry could carry out the auditing function.

(c) Site assessment and risk management procedures

LEPs would play a key role in the contaminated sites assessment and remediation process in British Columbia. Guidelines or policies establishing site assessment and risk management procedures for LEPs should be developed or identified by the LEP Board in conjunction with the Ministry. The guidelines would provide:

- consistency in the way sites in the Province are evaluated and managed;
- greater certainty for government as it undertakes its regulatory decision-making process with respect to, for example, issuing letters of no further action;
- greater certainty for LEPs as they perform their key site assessment, risk management and remediation functions; and
- reassurance to stakeholders about the contaminated sites process in the province.

These guidelines should also allow for the exercise of professional judgment and for variations in approaches regarding how sites are assessed, and how risk management and remedial options are developed and implemented, without jeopardizing the goal of protecting human health and the environment. An example of the guidelines we think could be adopted in British Columbia can be found in Washington State's *Cleanup Regulation*. This regulation sets out a number of key principles relating to site assessment and risk management procedures.[39]

Washington's Guidelines for Site Assessment and Risk Management Procedures

- Emphasizes practicality with respect to remediation, e.g. "when selecting a cleanup action, preference shall be given to permanent solutions to the maximum extent practicable" and, to determine whether the above concept is applied, "a disproportionate cost analysis shall be used."
- Recognizes that natural attenuation of hazardous substances may be appropriate at certain sites.
- Recognizes that engineering controls such as containment may be needed at certain sites where treatment is impracticable.
- Requires treatment or removal of sources of a release for liquid wastes, highly mobile hazardous substances or hazardous substances that cannot be reliably contained. However, source containment may be appropriate when the free product consists of a dense non-aqueous phase liquid (DNAPL) that cannot be recovered after reasonable removal efforts have been attempted.

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[39] *Model Toxics Control Act*, Cleanup Regulation, Chapter 173-340 WAC.

(d) Documentation requirements and procedures

The Panel recommends that minimum requirements for all documentation prepared by an LEP for any site be established by the LEP Board (in consultation with the Ministry). This would create a yardstick for the evaluation of the work of an LEP and provide greater certainty for regulators as they perform their decision-making functions. When establishing these minimum requirements, the LEP Board could consider using the Ministry's existing guidance documents for reporting of information. Ultimately the requirements should seek to achieve a reasonable balance between relying on professional judgment and a more prescriptive approach. In addition, they should take into account the limitations of data and science.

Similar to the Ontario process, the LEP would swear in the Record of Site Condition, that he or she has the expertise required to undertake the work underlying the site condition report; the services of experienced and qualified professionals have been employed where required; the assessment and remediation activities have been performed in accordance with applicable regulatory guidelines and requirements; and generally accepted environmental, geoscience and/or engineering practices were followed.

(e) Audits

The Panel recognizes the need to monitor the performance of LEPs to ensure that the minimum legal and policy requirements are satisfied and LEPs are accountable for their decisions. Accordingly, the Panel recommends that decisions of LEPs be audited by the LEP Board. Criteria for such audits should be developed.[40] Audit criteria should be flexible enough to enable the LEP to exercise professional judgment and to allow for variations in approaches. However, such flexibility should not jeopardize the goal of protecting human health and the environment. Additional audit details, such as the percentage of LEP decisions that should be subject to an audit, should also be worked out. Finally, the audit process should ensure that the end result of the site investigation, risk assessment or remediation are achieved, rather than evaluate whether the LEP has fulfilled all of the administrative details relating to the report.

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[40] Typical frequency of audits at Massachusetts is in the order of 10 to 20 %. Since 1993, more than 7200 site assessments and/or spill cleanups have received "sign-off" LSPs in Massachusetts, and disciplinary actions have occurred in approximately 20 cases.

The LEP Board should be given powers in its auditing capacity to accept the LEP decision, provide guidance to the LEP for future reports and where necessary, overturn the decision of the LEP. The Board should also have disciplinary powers similar to those of other professional licensing bodies.

The use of a professional body to oversee the activities and police the professionalism of its members is not uncommon. Various professional associations have this mandate, including, for example, the Law Society of British Columbia.

(f) Delegation of government functions

Once the LEP system is established, the Government may decide to delegate more responsibility to LEPs, such as issuing "no further action" letters for Category I - III sites. Such delegation will further decrease the need for regulatory involvement, allowing regulators to focus on high-risk sites (Category IV), increase the timelines of decision-making and decrease the overall costs associated with the process.

(g) Liability concerns

The work performed by LEPs would have inherent uncertainties. Such uncertainties are a function of, among other things, the constantly changing state of scientific knowledge and the reliance on professional judgment. Accordingly, the Panel recommends that LEPs be evaluated against the same standard they are required to meet in their consulting practice – namely, the standard of professional negligence. For example LSP in Massachusetts are able to obtain errors and omissions insurance pertaining to opinions provided in the Waste Site Cleanup Activity Opinion.

The Panel also recommends, however, that where LEPs perform delegated functions such as issuing "no further action" letters on Category I - III sites, they should be afforded the same protection against liability as their government counterparts would have received. (This is analogous to the immunity given to municipalities in section 28.6 (5) of the Act when they issue approvals in principle or certificate of compliance.)

(h) Out-of-province expertise

The Panel believes that the LEP system should not preclude the use of out-of-province professionals. However, we do recommend that submission of Records of Site Condition and closure reports for Category IV sites be the responsibility of an individual familiar with provincial legislation and procedures. Temporary licensing procedures could be developed for such out-of province individuals where certain requirements are satisfied. Such requirements might include evidence of qualifications necessary to perform the specified work at a particular site; familiarity with codes, standards and laws relevant to the project; and collaboration with LEP in completing the project.

(i) Conflict of interest

Some stakeholders expressed concern to the Panel about perceived conflicts of interest within the existing Roster system, particularly when Roster members approve their own work or the work of their respective companies. Concerns were also expressed to the Panel about possible conflicts of interest within the proposed LEP system. In particular, there was concern that an LEP might be swayed by his or her client to assign a lower level of risk to a site than would otherwise be warranted or that favourable LEP opinions could be "bought."

The Panel expects that the LEP Board's audits would address such concerns, as was the experience with the LSP system in Massachusetts. There, public groups initially also expressed fear about the potential for conflict of interest LSP program was being established.[41] However the associated audit program has proven to be an effective tool for controlling potential conflicts of interest. If an audit finds that a project was conducted in a deficient manner, the State requires the stakeholder, as responsible party, to address the deficiencies. Civil actions between stakeholders and the licensed professionals can potentially result. The license of the professional can also be removed. LSPs in Massachusetts are very reluctant to go beyond the realm of good science and engineering.

(j) Roster system

The Panel recommends that the Roster system be disbanded once the LEP system is implemented. Existing Roster members would be "grandfathered" into the existing system as discussed below.

(k) Interim organization.

Until the recommended LEP system can be established as an independent self-governing organization, certain aspects of the LEP system could be initiated under the Director's current mandate. Initially, the granting of temporary LEP licenses should be allowed to individuals who have at least a bachelor's degree in an applicable science or engineering field as well as eight or more years of relevant and senior level experience. These individuals would be required to pass the LEP examination when it became available. As well, we suggest that Roster members automatically be designated as LEPs when the LEP system is first implemented. Roster members and those with temporary licences would ensure an adequate supply of LEPs when the system starts up. There are at least three possible vehicles for establishing the ultimate LEP system:

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[41] Allan Fierce, Executive Director, Massachusetts Licensed Site Professional Program personal communication.

(i) as an organization under the *Societies Act*;

(ii) as a self-governing body with its own statute; or

(iii) as a body created by amending the Act and CSR.

Whatever option is chosen, the planning of a LEP system should begin as soon as possible.

9 What Modifications need to be made to the Existing Numerical Standards?

In this section, we address a number of issues related to the numerical values in the CSR:

- What is the commonly accepted procedure for developing environmental standards?
- How have the CSR numerical standards been applied?
- How should numerical values be used in British Columbia?
- How should numerical values be derived?
- What changes should be made to the existing numerical values?
- What role and resources should the Ministry have in developing numerical values?
- Who should have the power to change numerical values that are included in the regulation?

A Sample of What We Heard from Stakeholders

"There is concern about the draft salt standards which if implemented may result in significant public expenditure for testing and remediation of sites with possible minimal benefits to human health or the environment. Additionally, salt will be continued for use for accident prevention on roads during winter conditions. The trade-off between benefits relating to public safety and environmental impacts due to salt use has not been carefully assessed. Regardless, efforts are continuing for the development and implementation of science-based standards without recognition of socio-economic impacts." **BC Building Corporation**

"The selection of parameters for derivation of standards has to be carefully considered. The recent attempt to include resin acids (found naturally in wood) in the proposed Stage II CSR standards would have had a significant impact on the B.C. economy. There should be an assessment of probable real environmental or human health impacts prior to placing a substance on a list for standard development." **Council of Forest Industries**

Commonly accepted procedures for developing environmental standards

It is useful to compare the process the Ministry used to develop the CSR standards, to processes used by other jurisdictions.

In a 1972 report, the National Academy of Sciences and National Academy of Engineering[42] defined the terms "criteria," "objectives" and "standards" and outlined a framework for deriving "environmental standards." The Academies noted that environmental "criteria" are defined solely on the basis of science; "objectives" consider site conditions such as background levels and analytical capability; and "environmental standards" are ultimately defined as an acceptable value based on the "unique, local situations involving political, economic and social factors and including plans for implementation."

The framework suggested by the Academies was adopted by the U.S. EPA. It subsequently became the framework used by other jurisdictions including Canada. The acceptance of this framework by the scientific community and many regulatory agencies is noted in a 1997 review prepared by Kemper et al. for the CCME.[43] The Panel suggests that the following caveats from Kemper's report should be recognized when establishing screening values for sites in British Columbia

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[42] National Academy of Sciences, *Water Quality Guidelines, A Report of the Committee on Water Quality Criteria*, Washington D.C., 1972.

[43] Kemper, *supra* note 8.

(regardless of whether they are referred to as "criteria," "objectives" or "standards"):

- "National processes historically were designed to provide general guidance on protective levels and thereby allowed some discretion in the application of values for either enviro-chemical or social economic reasons."
- "Risk based soil guidelines can be modified as site-specific objectives to take into account important variation across regions/sites, while maintaining the same level of protection."
- "In the case of sediment quality, because of the wide variety of receptors, and physical/chemical background concentrations which exist in Canada, it may be attractive to consider applying the Canada Wide Environmental Standards such that they achieve *equal levels of risk across regions or sites, rather than a focus on achieving equal chemical concentrations*." A similar statement is made for water quality.
- "Availability and toxicity of contaminants may be significantly modified by physical soil factors. Adequate data to establish these relationships are generally not available for soil."[44]

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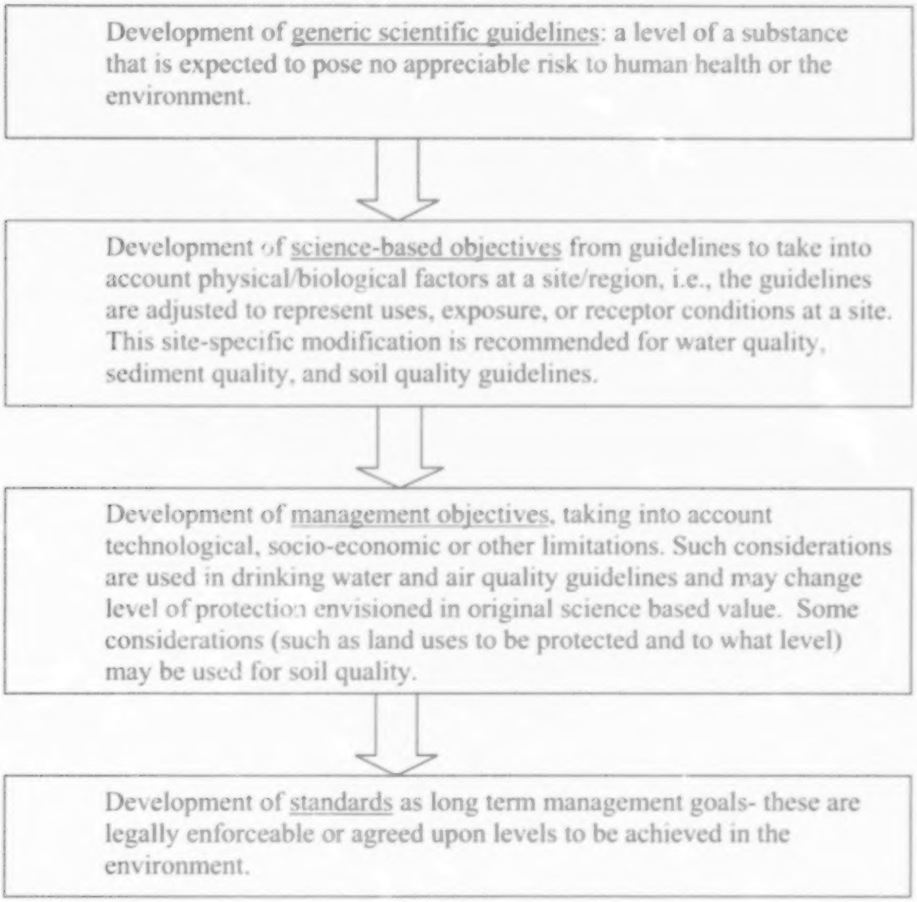
[44] *Ibid.*

If standards are to be developed, Kemper et al. indicate that the following process is used:



Development of generic scientific guidelines: a level of a substance that is expected to pose no appreciable risk to human health or the environment.

Development of science-based objectives from guidelines to take into account physical/biological factors at a site/region, i.e., the guidelines are adjusted to represent uses, exposure, or receptor conditions at a site. This site-specific modification is recommended for water quality, sediment quality, and soil quality guidelines.

Development of management objectives, taking into account technological, socio-economic or other limitations. Such considerations are used in drinking water and air quality guidelines and may change level of protection envisioned in original science based value. Some considerations (such as land uses to be protected and to what level) may be used for soil quality.

Development of standards as long term management goals- these are legally enforceable or agreed upon levels to be achieved in the environment.

The definitions of criteria, objectives and standards as provided by Kemper are consistent with those in use by the CCME.[45]

The recognition of the limits associated with the use of objectives is reiterated in a 1993 Department of Environment and Department of Fisheries & Oceans policy statement on water quality objectives for the Pacific and Yukon region:

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[45] CCME EPC CS34. *Interim Canadian Environmental Quality Criteria for Contaminated Sites*, Sept. 1991; CCME- *A Protocol for the Derivation of Ecological Effects Based on Human Health Based Soil Quality Criteria for Contaminated Sites*- July 1994; CCME- *Protocol for Derivation of Canadian Sediment Quality Guidelines for the Protection of Aquatic Life*- March 1995.

> [water quality objectives] must include inherent safeguards to ensure that a healthy environment is maintained. For this reason, site-specific chemical, physical and biological conditions must be considered when applying the Canadian guidelines. Additionally socio-economic factors, including public expectations regarding environmental quality need to be taken into account.[46]

British Columbia has entrenched three schedules of numerical values in the CSR, and in so doing has made them into legally enforceable standards. However, the values in the CSR schedules were not derived following the commonly accepted procedures establishing legally enforceable environmental standards. The CSR groundwater quality standards, for example, were adopted wholesale from an existing set of guidelines that were not intended to be legally enforceable. The Panel heard that the recently issued groundwater standard for cobalt was essentially derived from an undergraduate paper published in the early 1970s. Although no peer review of the science for that standard had occurred (the standard was adopted from a working guideline of the Ministry's Water Quality Branch which was awaiting review), and although no recognition was given to the fact that background concentrations in British Columbia usually exceed the proposed value, the value was still formalized in law as a standard under the Stage II amendments to the CSR.

In addition, the Schedules 5 and 6 standards are based on a review of toxicological information, but they do not take into account site specific physical, biological or socio-economic factors. The scientific basis of the Schedule 4 soil numbers is, at best, unclear. In reality soil is a very complex medium. It is extremely difficult, if not impossible, to develop a single numerical value appropriate for all contaminated sites, even within a particular land use category.

Due to the complexity of individual sites, site-specific conditions must be considered to develop meaningful management goals. The existing numerical values in the CSR therefore are only appropriate to use as screening values.

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[46] DOE/DFO *Policy Statement on Water Quality Objectives for the Pacific and Yukon Regions*, signed October 15, 1993 by E.D. Anthony, Director General, Conservation and Protection-Pacific and Yukon Region and P.S. Chamut, Director General, Fisheries and Oceans Pacific Region.

Application of current CSR numerical values

Discussions with stakeholders revealed that a culture has developed within British Columbia where the numerical values in Schedules 4, 5 and 6 of the CSR have virtually become the only accepted end-points for remediation. This is despite the availability of other options involving the use of site-specific standards and risk assessments. The culture is driven by a fear of liability associated with a site that has substances in concentrations in excess of Schedules 4 through 6 values, regardless of whether the site poses a potential human health or environmental risk.

Few property owners, financial institutions or lawyers are aware that many of the Schedule 5 matrix standards were developed on the basis of a simplistic risk assessment approach. Most are also not aware that using the options of site-specific standards and risk assessment would result in a more appropriate assessment of potential risks for the subject property.

The Panel heard general concerns from stakeholders about how the current CSR standards are being applied to the assessment and remediation of properties. Many expressed the need for more flexibility in the use and interpretation of protocols and standards, which although scientifically valid, are general and need to cover the most sensitive circumstances. Stakeholders also told us that common sense and context need to be considered.

A Sample of What We Heard from Stakeholders

"Criteria should be flexible, site specific… Criteria are only approximations and often very conservative ones… A cleanup should occur only where there is a real risk." **Canadian Homebuilders Association**

"Sites should be screened with numerical criteria, then more detailed site risk assessments should be undertaken." **Medical Health Officers Council**

"The option of applying "site specific standards" as per the regulation has only been used four (4) times since enactment of the regulation in 1997." **Ministry representative comment**

"The needless complexity of developing a site-specific standard along with the limitation that they may only be developed when a matrix numerical standard is available has prevented their adoption." **Darren Schlamnp, Independent Consultant**

"Soil and groundwater standards should remain part of the Regulations to ensure that parties are held accountable to remediate their sites to acceptable levels." **Students in Action for the Environment**

"Rather than crystallize the standards that will apply to a given site- i.e., choose which of the standards in the CSR will apply - I suggest that appropriate risk criteria be derived that best suit the circumstances of the site. Is it rational to calculate compliance with risk standards for soil invertebrates at a site that will be paved over? I am sure the worms would take their chances with an unacceptable risk rather than the inevitable consequences of being under paving." **Graham Kenyon, Independent Consultant**

"Determination of standards to date has been at times arbitrary and without proper scientific backup, leading to remediation for the sake of remediation (in order to obtain a Certificate of Compliance) rather than to support any real environmental or health imperative." **Chevron Canada**

"We think that BC needs to be careful about 'developing standards and guidelines based on science, technology, British Columbia's geography and socio-economic factors'. …with Washington State there are examples where we share a common aquifer (Huntington Aquifer in the Abbotsford/Sumas area) that is impacted by surface based activities. A lack of 'harmony' between our respective standards could mean we are a source of pollution to that aquifer impairing water quality for our neighbors to the south." **Morrow Environmental Consultants Inc.**

How should numerical values be used in British Columbia?

Throughout this report the Panel has recommended that any numerical values for soil, groundwater and sediment within the CSR be used solely as "screening values." It is scientifically difficult, if not impossible, to establish in a single set of numerical values that are appropriate for all sites. As is recognized by the CCME, a policy approach that uses numerical values as criteria or guidelines, instead of regulatory standards, is more appropriate. In addition, the presence of a substance of potential concern for which there is no screening value will require a review by a LEP to evaluate the potential risk posed by the substance.

Recommendations Regarding the Use of Numerical Values in B.C.

Use numerical values for soil, groundwater and sediment within the CSR solely as "screening values". (i.e., the first step to identify whether there are substances of concern at the site).

How should numerical screening values be derived and how should existing numerical values be modified?

In 1995, the Ministry formed a Contaminated Sites Soil Task Group (CSST) to develop procedures for deriving standards to be used in the CSR. Those procedures have since remained in place. The Panel also notes that in 1996, the Panel at the Contaminated Sites Standards Review Workshop recommended that the Ministry "review its standards every 3-5 years and amend its standards accordingly to reflect the evolution of science and the generation of new data."[47]

Both stakeholders and Ministry representatives requested changes to the existing CSR standards and the process by which standards are developed or modified.

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[47] M.M Dillon Ltd., Contaminated Sites Standards Review Workshop Report – March 20-22, 1996

A Sample of What We Heard from Stakeholders

"An open, public system must be developed to review cleanup criteria and evolving risk assessment/risk management procedures on a national basis." **Canadian Homebuilders Association**

"Groundwater standards are the main driving force of remediation at many sites…. Options to replace Schedule 4 and 6 of the regulation should be considered…. Risk provisions for ecological risks should be assessed." **Ministry of Water, Land and Air Protection and BC Ministry of Attorney General joint submission**

"There is no consistency in the approach for the development of the Schedule 6 water quality standards and the approach used for developing the standards for protection of soil invertebrates and plants. As well, the approach used for derivation of Schedule 6 standards does not reflect guidance on ecological risk assessment." **Ministry representative comment**

" 'Numerical figures'…. must be technologically achievable. In some instances, values have been established for specific parameters that are well below defensible detection limits…. Any proposed numerical value put forth in regulation or otherwise, must address the issue of uncertainty - either that associated with field sampling or analytical measurement." **Cantest Ltd.**

"Further attention is required for many of the Schedule 4 soil standards, which date back to the Netherlands standards developed prior to 1987. There should be the objective of developing matrix standards for all Schedule 4 parameters. However, the Ministry has limited resources to address this issue, and perhaps parties that are affected by the Schedule 4 standards could develop draft standards for regulatory review."[48] **Ministry of Water, Land and Air Protection**

"Real world data obtained since 1997 indicate minimal relevance to the soil standards (particularly for metals) developed for protection of aquatic life, suggesting that those standards are not reflective of good science. The transport model used to predict the relationship between soil quality, groundwater quality and subsequent transport of groundwater contaminants should be reviewed." **Roster member comment**

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[48] Such an approach was used by the chlorophenol industry to derive draft standards for pentachlorophenol.

"A protocol should be developed for site-specific standards for groundwater." **Business Council of British Columbia**

"There should be records of decision for site-specific criteria and risk assessment/risk management options to aid landowners facing similar situations."[49] **Canadian Builders Association**.

"Groundwater standards for contaminated sites have been derived on the basis of B.C. approved and working ambient water quality guidelines, without recognition of background concentrations in groundwater. Examples include the groundwater standards for iron, manganese and cobalt which when published, were in excess of background concentrations at many B.C. sites. Sites with those elements in groundwater were subject to considerable delays in approval processes." **Roster member comment**

Based on the comments noted above, the Panel provides the following recommendations with respect to the existing CSR standards (proposed by the Panel as screening values) and the means by which the numerical values are derived or modified.

Recommendations for Deriving Numerical Screening Values

Review the Contaminated Sites Soil Task Group (CSST) process for deriving standards to ensure that additional knowledge gained since 1995 is considered.

Reassess and amend the numerical values in the existing CSR Schedules 4 and 6 to ensure they have a sound scientific basis and represent the current level of knowledge.

Develop Schedule 5 matrix soil values for all Schedule 4 generic soil values.

Modify the Schedule 6 water quality standards for protection of aquatic life to uniformly reflect the Ministry's acceptable ecological risk threshold.

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[49] This process will enable consistent approaches to the management of site for which there are no standards.

Recognize that the existing Schedule 5 matrix soil values for protection of aquatic life are limited by the rigour of the existing transport model, and update these values if a better approach is available.

Simplify the process for establishing that a site has background levels in excess of numerical screening values.

Create a database of soil and groundwater background levels throughout the Province.

Ensure that the screening values:

- are scientifically supportable to ensure safe, healthy communities and a sustainable environment;
- recognize aspects such as typical background levels in British Columbia and analytical capabilities; and
- effectively identify those sites for which further risk evaluation is required.

Ensure multi-stakeholder consultation takes place when screening values are developed with the assistance of either the Science Advisory Board or the existing Subcommittee on Standards.

Ensure that resources directed toward remediation achieve environmental and health benefits and consider social and economic costs.

Establish a realistic procedure to identify which additional substances require screening values to adequately protect human health or the environment.

Post decisions regarding site remediation objectives for non-specified toxic substances on the Ministry website.

Post all proposed numerical screening values and other new Ministry initiatives on the Ministry website, so all affected parties can have an opportunity to comment.

Ministry role and resources

At this time, Ministry resources are insufficient to meet the current demands for updating the numerical values in the CSR and to participate in national processes where contaminated sites guidelines or criteria are developed. For instance, the previous government signed a federal/provincial harmonization agreement whereby criteria such as the Canada Wide Standards for petroleum hydrocarbons were to be considered for application within a two years of publication of the standards. To date, the Ministry does not have the resources to complete this review or to address concerns related to it. One stakeholder, for example, worried that adoption of the Canada Wide Standards (as well as the CCME associated analytical methods) could result in elevated costs and complexities in the evaluation of properties.[50]

It is important that the Ministry has sufficient resources to make the recommended changes to Schedules 4, 5 and 6 as soon as possible, because problems with the existing numerical values continue to promote unnecessary investigative and remedial activities, or in some cases are inadequate to protect human health or the environment.

Recommendations for Sufficient Resources

Ensure that the Ministry has sufficient resources to effectively participate in CCME activities and assess whether CCME proposed national criteria are appropriate to apply in British Columbia.

Ensure that the Ministry has sufficient resources to make the recommended changes to CSR Schedules 4, 5 and 6 as soon as possible.

Who should have the authority to amend numerical screening values?

Currently, a numerical value in the CSR is a legally enforceable standard. To update these standards to keep pace with refined scientific knowledge, an Order-in-Council is necessary. Changes can therefore be delayed by one to two years, thus impacting ongoing assessment and remediation projects significantly. Screening values as proposed by the Panel should not be legal standards as they are intended to be a means to identify substances of potential concern on a site. Ultimately an Order-in-Council would not be necessary to modify screening values when changes in response to new information are proposed. However, until the CSR is revised, the Minister should be the delegated authority to revise the existing CSR standards.

Recommendations for Modifying Screening Values

Delegate to the Minister, rather than the Lieutenant Governor in Council, the authority under the Act to set and modify CSR numerical values.

10 How can Remediation be Managed more Effectively?

Stakeholders brought to the Panel's attention a number of issues relating to the remediation of contaminated sites under the existing regime. Key among those issues:

(i) the lack of acceptance of cost-benefit analysis for selecting remedial options;
(ii) the excessive reliance on the "dig and dump" approach to remediation regardless of risk;
(iii) the limited treatment and disposal options; and
(iv) the involvement of all three orders of government in contaminated sites management.

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[90] ALS Canada Ltd.

(i) Lack of acceptance of cost-benefit analysis for selecting remedial options

Federal Treasury Board[51] and Federal Contaminated Sites Management Working Group[52] policies require that a cost-benefit analysis be incorporated into an evaluation of remedial options to ensure that the remedial actions chosen achieve human health or environmental benefits proportionate to their social and economic costs. Cost-benefit analysis is rarely incorporated into the choice of remedial options in British Columbia. One stakeholder added that there is no provincial policy for the use of alternative sustainable solutions for contaminated sites.[53] Currently, the driving force for remediating contaminated sites in the Province is limiting financial liability. The assumption is that the clean-up of all soil and groundwater within a site to the CSR numerical standards will remove such liability.[54]

On-site risk management of contaminated sites is encouraged as an option by the Federal Treasury Board and the Federal Contaminated Sites Management Working Group, and is enabled under the current Act and CSR. Risk management, however, is perceived to be undesirable by present and future property owners because under the Act there is still potential liability associated with the site. The fear of liability takes precedence in the decision-making process over an analysis of remedial options based on each option's respective socio-economic costs and benefits and what each option achieves in terms of protecting human health and the environment. The Panel notes that the State of Oregon has a policy that encourages the removal of the source areas of contamination followed by the risk assessment of the remaining residues. Through legislation, the State of Washington enables the use of a "disproportionate cost analysis" for clean-up actions.[55] The overall result is a reduction in remediation costs.

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[51] *Federal Contaminated Sites Management Policy* (July, 2002).
[52] *Federal Approach to Contaminated Sites* (November 1999).
[53] British Columbia Building Corporation.
[54] Comments from consultants.
[55] WAC 173-340-360(3)(b).

(ii) Excessive use of the "dig and dump" approach

A second issue raised by stakeholders relates to the over use of the "dig and dump" approach. Since remediation in the province is driven chiefly by fear of liability, even if there is no evidence of a possible impact on human health and the environment, it is common to remove all soil from the site with contaminants in excess of the CSR standards. With the exception of soil contaminated with biodegradable organic compounds (e.g., petroleum hydrocarbons, pentachlorophenol), contaminated soils are merely transferred to landfills in other areas, principally to Alberta.[56]

The dig and dump approach does not necessarily lead to greater protection of human health or the environment. The Medical Health Officers of British Columbia point out that the excavation and transport process generally create more human health and environmental risks than in-situ management of the contaminants.[57]

The costs associated with the dig and dump approach may also outweigh its benefits. For example, in some cases the financial resources required to remove a large portion (e.g., 90%) of the total contamination at a site may be equal to the resources spent to remove residual amounts of contamination, even though the risk of the remaining contaminants may be within acceptable limits.

(iii) Limited alternatives

There are limited options for treatment and disposal in the province. Where contaminants are removed, recycling, reuse or destruction should be preferred over merely placing the soil in landfills where the contaminants remain in their original form, creating a potential problem for future generations. The Ministry and municipalities, however, are reluctant to allow the application of proven technologies at contaminated sites (e.g., thermal desorption or incineration). The lack of disposal and treatment options for contaminated soil restricts the available remediation choices and results in higher remediation costs. Furthermore, sending soil out of the province for disposal violates the principle that problems made in British Columbia should be solved in British Columbia.

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[56] Commonly, contaminated soils from British Columbia are sent to Alberta. However in the recent past, soil contaminated with hydrocarbons have been treated by use of bioremediation at several British Columbia disposal facilities.

While bioremediation facilities in the province are currently treating soil contaminated with hydrocarbons and with biodegradable compounds such as pentachlorophenol, no facilities in British Columbia are equipped to treat soils contaminated with metals or certain organic compounds. As mentioned previously, these soils must be exported for treatment and disposal, primarily to Alberta,[58] where the classification of contaminated soil is less onerous than in British Columbia. The Alberta government enables classification of soils based on their quality following their removal from a site. By contrast, the British Columbia method of evaluating soils is based on the results of in-situ analysis (i.e., prior to removal). Additionally, Alberta evaluates the acceptability of most materials for disposal at landfills on the basis of leachate characteristics rather than "total contamination" in the materials. If the Alberta approach were adopted in British Columbia, a significant amount of soil could potentially be treated or disposed here instead.

(iv) Involvement of three levels of government

A fourth concern relates to the regulatory overlap. Although contaminated sites have been identified as an issue by federal, provincial and municipal governments, there is little coordination between these levels of governments in generating options and solutions for the management of contaminated sites.[59]

Although all regulatory agencies want sites to be remediated, the maze of regulations can stall the remediation process. Municipal, provincial and federal agencies can each impose their own requirements for remediation, delaying the

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[57] Comments by consultants.
[58] Business Council of British Columbia.
[59] Comments of consultants and industry.

remediation process. For example, a site may be of concern to either the provincial or the federal government due to its potential environmental impacts. Remediation of the site would also enable its development, and generate future tax revenue for the municipality. However, the municipality may be reluctant to approve aspects of the remediation process (e.g., the discharge of treated groundwater from the site to a sewer system) because of the federal *Fisheries Act* or provincial requirements for storm water or sanitary discharge.[60] In the absence of a municipal permit to discharge treated groundwater, the site stakeholder has to halt the remediation process.

Specific Concerns Regarding the Role of Provincial Regulators

Several stakeholders noted that cooperative approaches between Ministry and outside parties (e.g., landowners and consultants) to facilitate the development of site-specific (and cost-effective) remediation programs appear to be less frequent now than before the introduction of the current contaminated sites regime. Another stakeholder stated that there are no common policies within the Ministry relating to the following issues: risk management of non-aqueous phase liquid NAPLs versus removal of them; the use of natural attenuation; and the use of in-situ risk management options.

Specific Concerns Regarding the Role of Federal Regulators

Some stakeholders also told us that federal regulators can impede remediation at particular sites, such as one located near a water body. For example, federal authorities may not agree with the remediation objectives approved by other levels of government. In addition, local representatives of federal authorities are not comfortable with risk management approaches, even though those approaches are considered acceptable in a federal document entitled "*A Federal Approach to Contaminated Sites*."[61]

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[60] Comment from representatives of municipalities.

[61] Contaminated Sites Management Working Group, 1999.

Stakeholders also expressed concerns to the Panel over the involvement of federal regulators (Environment Canada and Fisheries and Oceans Canada) at contaminated sites in British Columbia. Many properties in the province are adjacent to fresh and marine waters. If contaminants flowing from a site reach or may reach waters frequented by fish, then federal regulators often become involved on the basis that they are enforcing section 36 (3) of the federal *Fisheries Act*.[62] They also become involved when remedial activities may result in the alteration or destruction of fish habitat, which is prohibited under section 35 (1) of the *Fisheries Act*.

A Sample of What We Heard from Stakeholders

"Many contaminated sites in British Columbia involve both provincial and federal regulators. The federal and provincial regulators often impose differing remediation requirements. The involvement of both levels of government almost always leads to significant delays in the remediation process and increased remediation costs." **Business Council of British Columbia**

"Imperial Oil supports [the Panel's] goal in seeking an agreement with the federal government to establish a clear provincial lead in administering and managing contaminated sites, as such clarification will ultimately lead to reduced costs of doing business in B.C., both for industry and government. Hopefully, such agreements may help deal with some of the jurisdictional inconsistencies that exist today." **Imperial Oil**

"Site owners are sometimes concerned about jurisdictional overlaps and excessive regulatory burdens (provincial, federal and municipal) for contaminated sites and additional requirements imposed by external groups such as FREMP [Fraser River Estuary Management Program] and BERC [Burrard Environmental Review Committee]. The roles of FREMP and BERC on contaminated site issues should be re-examined." **Ministry of Water, Land and Air Protection**

"Among the regions of Canada, there are differences in federal approaches to contaminated sites…. The approaches used by Pacific and Yukon federal personnel are more stringent and less flexible…. The concept of risk assessment and risk management is not accepted by Region federal authorities." **Business Council of British Columbia members' comments**.

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[62] R.S.1985, c. F-14.

We also heard from federal regulators about their view of their role in contaminated sites remediation in British Columbia.

A Sample of What We Heard from Stakeholders

"In many cases contaminated groundwater and surface water from contaminated sites has been and continues to be deposited into fishery waters. Such depositions may be in violation of the federal environmental legislation, in particular the pollution prevention provisions of the *Fisheries Act*, and can negatively affect fishery resources, fish habitat, migratory birds and water quality. In our view, the Panel's Interim Report fails to acknowledge federal legislation and the integral role that the federal government plays in addressing contaminated sites where both the federal and provincial government's have jurisdiction." **Environment Canada**

"Environment Canada and Fisheries and Oceans concur that any regulatory agency should be cooperative and responsive. In this regard the enforcement entity of any such agency that conducts inspections, investigations of alleged responses and follow-up enforcement action should be guided by principles based on the fair, predictable and consistent application of the law… Environment Canada and Fisheries and Oceans participate in contaminated sites issues only when there is a clear requirement based on federal legislative mandate to do so. In light of this mandate the two federal departments fully expect to continue to be involved in the management of contaminated sites and would be pleased to further discuss the BC strategies to optimize federal-provincial cooperation." **Environment Canada and Fisheries and Oceans Canada**

The Province's current relationship with federal regulators, notably Environment Canada and Fisheries and Oceans Canada, over the issue of responsibility for contaminated sites is complex. Often stakeholders face conflicting requirements from provincial and federal regulators. In addition, stakeholders often find it difficult to determine which regulatory agency has the lead role in managing contaminated sites.

Many of our recommendations are aimed at establishing greater certainty for all participants in the contaminated site management and remediation process. However, in our view, such certainty cannot be achieved unless the provincial and federal agencies can agree on a lead agency to be responsible for the management of contaminated sites in British Columbia. The Panel recognizes that Environment Canada and Fisheries and Oceans Canada are responsible for enforcing applicable federal legislation in the province. Nevertheless, we believe that the provincial and federal authorities should develop strategies to allow the Province to take the lead in administering and managing the contaminated sites process. This would, in our view, result in greater coordination and regulatory consistency, between federal and provincial agencies, when remedial requirements are imposed.

Several stakeholders complained that federal regulators in British Columbia are reluctant to accept risk assessments and risk management approaches for contaminated sites, despite CCME and the federal Treasury Board policies regarding their acceptability.[63] Environment Canada and Fisheries and Oceans Canada representatives have stated that they lack sufficient staff with the technical expertise to understand and review risk assessments. This is not a justifiable reason for federal agencies to reject risk assessment and risk management approaches at contaminated sites in British Columbia.

Finally, there is a need to clarify how and when the *Fisheries Act* is applicable to contaminated sites. Stakeholders complained about situations where the *Fisheries Act* was so rigorously applied that a groundwater discharge with no apparent environmental risk was considered by the federal regulator to be in contravention of the *Fisheries Act*. In addition, there is considerable confusion amongst stakeholders and regulators regarding when the federal agencies can properly assert section 36

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[63] The CCME's 1991 *Interim Canadian Environmental Quality Criteria for Contaminated Sites*, for example, provides for the acceptance of "site-specific risk assessment" and consideration of environmental or socioeconomic conditions in the development of remediation options. The 2002 *Treasury Board Federal Contaminated Sites Management Policy* calls for "optimal use of financial and technological resources through the use of a risk management approach." See also Contaminated Sites Management Working Group, 1999 *A Federal Approach to Contaminated Sites*

(3) of the *Fisheries Act* as the reason they become involved in approving the remediation approach at sites with historical contamination. Section 36 (3) provides:

> … no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water.

Stakeholders complained that federal regulators routinely assert jurisdiction or threaten to charge those who control sites with historical contamination, even though the person had no control over the activity that was the source of the contamination. In asserting jurisdiction they ignore cases establishing that a person cannot be charged with an offence under section 36(3) unless that person undertakes an activity that is the source of the pollution or is a position to exercise control over the activity and prevent the pollution from occurring.[64] Mere control over land that passively discharges contaminants is not enough. The person must exercise some degree of control over the activity that caused the pollution and is thus able to prevent it. Furthermore, the *Fisheries Act* is not necessarily applicable to sites with historical contamination where control of the contaminant source is no longer possible.

Specific Concerns Regarding the Role of Municipalities

A myriad of municipal bylaws also effect soil relocation, and many municipalities may have obligations beyond the CSR pertaining to the management of contaminated sites.[65] For example, the City of Vancouver has its own contaminated sites management process that appears to go beyond the Act and the CSR. The City requires property owners to sign a 40 page "Soils Contamination and Monitoring

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[64] See for example *R. v. Rivtow Straits Ltd.* (1992), 8 C.E.L.R. (N.S.) 16 (B.C.S.C.) which establishes that the interpretation of section 36 (3) draws on principles set out by the Supreme Court of Canada in *R. v. Sault Ste. Marie (City)*, [1978] 2 S.C.R. 1299. See also *Ontario (Attorney General)* v. *Tyre King Tyre Recycling Ltd* (1992), 9 OR (3d) 318.

[65] Business Council of British Columbia, Ministry and CPPI.

Agreement" prior to attaining approval for a remediation program. Most property owners refuse to sign the Agreement, and even high-value properties are left undeveloped. Remediation of those properties may also be halted.[66]

Additionally, the time required to obtain municipal approvals can hinder the remediation process. For example, municipal approvals to discharge treated groundwater and the municipal issuance of air emissions permits take between one and 15 months. One stakeholder suggested that a better partnership between the province and municipalities is required to expedite the remediation and management of contaminated sites in British Columbia.[67]

The Panel, after discussions with the U.S. EPA and various regulatory agencies in the United States, observed that United States municipal, state and federal agencies responsible for contaminated sites responsible have a better working relationship with each other than do the municipal, provincial and federal government agencies in Canada. For instance, to deal with issues related to multi-government involvement in contaminated sites, the State of Oregon amended its environmental clean-up legislation to create a statutory "permit waiver" provision, pertaining to on-site remediation activities that have been approved by the State.[68]

In British Columbia, the regulatory overlap and lack of coordination between the regulatory agencies slows down the remediation process, increases the associated costs, and may be resulting in remediation being started and abandoned or not undertaken at all.

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[66] Comment by Roster Member.

[67] Business Council of British Columbia.

[68] The provision states in part: "Without affecting substantive requirements, no state or local permit, license or other authorization shall be required for, and no procedural requirements shall apply to, the portion of any removal or remedial action conducted on-site where such removal or remedial action has been selected or approved by the director under this section, unless the permit, license, authorization or procedural requirement is necessary to preserve or obtain federal authorization of a state program…" ORS 465.351.

Recommendations for Managing Remediation More Effectively

Encourage and accept the use of a cost-benefit analysis to evaluate remediation options.

Develop policies to facilitate acceptance by all levels of government of risk-based approaches to contaminated site management, with the objective of achieving the goals of protecting human health and the environment.

Encourage the use of alternative disposal options for contaminated soils to reduce the use of landfills; and establish secure landfills in British Columbia for metal contaminated soil.

Evaluate the method of classifying contaminated soil in the province to determine whether it is scientifically supportable and achieves the goals of protecting human health and the environment.

Streamline the involvement of various levels of government in the management of contaminated sites in the province by giving one level of government or agency the lead role.

Clarify the relationship between the provincial and federal governments to facilitate remediation of contaminated sites in British Columbia, notably those that are adjacent to or near fish-bearing waters.

Establish greater cooperation between the Province and municipalities to encourage and expedite site management and where necessary, remediation. As part of this, address municipal concerns about their potential liability.

11 Who Should Be Responsible for a Contaminated Site?

Some of the key problems with the current contaminated sites regime involve issues of responsibility and liability. These issues are both complex and interrelated and will be discussed in sections 11 through 14. Section 11 discusses who should be potentially responsible for remediating or contributing to the costs of remediating a contaminated site. Section 12 discusses the mechanisms that should be available for bringing potentially responsible persons into the process and, once they are in the process, how liability should be allocated. Section 13 discusses how disputes relating to contaminated sites should be resolved. Finally, section 14 discusses the mechanisms that should be implemented to provide closure of liability.

Stakeholders told us that the overly broad and arbitrary range of persons who are responsible for remediation or remediation costs, along with the harsh liability scheme, have made lenders and developers afraid of investing in or redeveloping contaminated land in British Columbia. The Panel heard stories about previous owners or shareholders who, while not causing or contributing to the contamination, were held responsible for remediation. As well, we heard about current owners who did not contribute to the contamination but were aware of it when they purchased a site, and were unable to refinance or sell their properties. According to stakeholders, banks are reluctant to lend money to a borrower who might be found liable to remediate a site and therefore could have limited means to repay the loan.

Stakeholders generally support a system based on the "polluter pay principle" — where those who caused the contamination at a site are held responsible for remediation, or some portion of the remediation costs, based on the extent to which they contribute to the problem. Most stakeholders agree there is a need to overhaul the current responsible party and liability regime to bring it more in line with this principle.

Some stakeholders also support a system of responsibility that incorporates the "beneficiary pay principle" — where not only those who caused the contamination, but also those who benefited from it or may benefit if the property is remediated, are held responsible. However, some stakeholders expressed concern with this principle.

A Sample of What We Heard from Stakeholders

"It is essential that responsibility be linked to a person's control over and causal link to the activity or substance causing the contamination. This is fundamental to the 'polluter pay' concept." **Petro Canada**

"The regulatory regime for contaminated sites in British Columbia should continue to be based on the principle of polluter pays. This principle encourages the internalization of costs of pollution by persons principally responsible for such pollution." **Canadian Bar Association (BC Branch) – Environmental Law Section**

"BCR agrees that the liability provisions of the current regime must be overhauled. The principle of 'polluter pay' is inherently fair and should be entrenched in the legislation. The concept of 'beneficiary pay' is more troublesome. While the concept of 'beneficiary pay' is acceptable and fair in certain contexts, it can result in an unfair result and a disproportionate allocation of liability…. Moreover, the concept of 'beneficiary pays' arguably encompasses all beneficiaries including the public who benefit from low commodity prices, employees who benefit from wages, all levels of government which benefit from taxes, other businesses which benefit from the provision of services, etc. Clearly, all levels of society may qualify as 'beneficiaries.'" **BC Rail**

"Recommendation 4.5 … refers to the concept of responsibility being tied to 'polluter pay' and 'beneficiary pay'. 'Polluter pay' has been emphasized in proceedings related to the Act. [We] support the recommendation that the principles of 'beneficiary pay' be upheld. We understand this principle to be a strong allocation factor in proceedings in the United States…. As an example of how the principle of 'beneficiary pay' has not been fully addressed under the current legislation, the present owner of a site may have purchased a contaminated site before the Act came into force, and then had a portion of the costs of remediation paid for by previous owners and operators of the site. The present owner is then left with the significant benefit of a more valuable site than the owner originally purchased, which is inequitable." **Bernard & Partners**

"The current system is not based on the 'polluter pay' or even 'beneficiary pay' principles. It is really an 'anyone but the taxpayer pays' system." **Janice Walton, Blake, Cassels & Graydon**

"Ideally, the persons considered responsible for remediation of a contaminated site should be limited to those persons that actually caused contamination that was illegal at the time of such causation. To do otherwise is to continue the present practice of 'without fault liability' that is retroactive, absolute, joint and several.... I reiterate my prior comment that issues of liability should be based on principles of causation and fault under the common law." **Imperial Oil**

"A definition of 'beneficiary pay' that deals with those who benefit from the clean-up is relevant and should cover sales of property to persons with knowledge of the contamination. If, however, the definition of 'beneficiary pay' is determined at the time of contamination, it is either redundant in that it is the polluter who is already caught or hopelessly broad in that it includes everyone, owner, lessee, manufacturer, consumer and all levels of government. This latter definition should be rejected." **Imperial Oil**

In our view, there are several problems with the current system regarding who is considered responsible for a contaminated site and accordingly may be liable for carrying out remediation or contributing to the costs of remediation including legal and consultant costs associated with seeking contributions from other responsible persons.

The first problem is that the current legislative provisions regarding who is or is not considered a responsible person for a contaminated site are lengthy and cumbersome, encompassing over three pages of the Act and 12 pages of the CSR.[69] If the responsible person provisions were tied to a narrower, more sensible set of principles for assigning responsibility, it would not take 15 pages to outline categories and carve out exceptions and modifications to those categories.

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[69] Sections 26.5 and 26.6 of the Act; sections 19 through 33 of the CSR.

Second, responsibility for carrying out remediation or contributing to the costs of remediation is, in the current system, supposedly based on the "polluter pay principle." However, the net of responsible persons in section 26.5 (1) of the Act (even as modified by the numerous exemptions in the Act and the CSR) extends far beyond those who contaminated the site and thus might be considered "polluters." Also included is a wide range of parties who fall within the expansive definitions of "owner" or "operator," whether or not those parties caused or contributed to contamination at the property. As section 26 (1) the Act states:

> "owner" means a person who is in possession of, has the right of control of, occupies or controls the use of real property, including without limitation, a person who has any estate or interest, legal or equitable, in the real property, but does not include a secured creditor unless….
>
> "operator" means, subject to subsection (2), a person who is or was in control of or responsible for any operation located at a contaminated site, but does not include a secured creditor unless….

These definitions are a vast departure from the plain meaning, or even the typical legal definition, of "owner" and "operator." Included in the definition of "owner", for example, are beneficiaries of a trust, shareholders, those with equitable or legal charges on the property, and those who have a possessory relationship or right of control over the property. Likewise, the definition of "operator" includes those with some degree of control or responsibility over *any operation* at a contaminated site, regardless of whether there is a link between that operation and the contamination or activity causing the contamination. Responsibility is thus based primarily on a person's status as an owner or operator, rather than on "fault" or some causal link to an activity that resulted in the contamination.[70]

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[70] In some circumstances, even producers or transporters of substances that ended up contaminating the site could also be considered responsible persons, provided there is a basic link between the producer's or transporter's control over the substance and the cause of the contamination.

A Sample of What We Heard from Stakeholders

"The current definition of 'responsible person' casts a net of liability that goes far beyond the actual polluter. In a recent EAB appeal concerning director liability for a contaminated site, counsel for the individual director pointed out that the gardener or the receptionist could be held liable for the activities of its employer. Counsel for the Ministry stated:

> those individuals would be caught by the legislation but would be protected by the principled discretion of the manager, the ability to appeal such an order to this Board, and the further authority of the Board to stay such an order.

This is not an acceptable situation. It is not sufficient to say 'trust the Ministry to exercise this discretion appropriately.' Such uncertainty has a negative impact on investment and business activity.

In that same decision [*Thomas Lawson v. Deputy Director of Waste Management et al.*, Sept 19, 2001], the EAB held that a director of a company can be liable for contamination on a site without any requirement for MWLAP to show that the director caused or authorized the contamination, or even that the company of which the person was a director caused the contamination." **Business Council of British Columbia**

The third problem with the current system is that although section 26.6 of the Act sets out several exemptions to the wide net of those considered responsible persons, these exemptions are modified — and in some cases virtually eliminated — by sections 19 through 33 of the CSR. Further complicating the situation is the fact that because a person caught within the broad definitions of owner and operator (even someone who has not caused, contributed or in any way benefited from contamination at the site) has the burden to disprove that he or she is a responsible person.[71]

The fourth problem is that the current system, in applying today's standards and assigning new consequences to activities that occurred several decades ago, is fraught with problems of equity. In many cases, those who caused the contamination are no longer around. In the absence of the original "polluter," the current system assigns responsibility to any party that has since come into contact with the property. Even if they are around, neither the original polluters nor subsequent owners and operators can change their activities nor internalize the costs associated with the contaminating activities. Furthermore, in most cases the activities that caused the contamination were legal at the time and may have been done with government authorization. It is a basic component of the rule of law that a person's actions are to be judged against the laws in force at the time and subsequent laws should not retroactively alter the consequences attached to those actions. This is especially true where past governments sanctioned or positively encouraged the activities in question. It is an arbitrary assignment of liability to make one person legally responsible for the acts of another, over whom the first person cannot reasonably be expected to influence or control.

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[71] Section 26.6 (3) of the Act.

In summary, several principles fundamental to our legal system are being violated by various aspects of the present contaminated sites system in British Columbia. Accordingly, a more equitable system of defining who is a potentially responsible party and allocating responsibility between those parties would be an improvement over the current system. It comes down to an issue of who should bear the cost of historical contamination when society has changed the rules after gaining new knowledge about human health or environmental risks associated with particular substances. Should it be the current owners, who currently have control over contaminated sites although they may not have caused the contamination? Should it be past owners or operators, who caused or contributed to the problem even though their actions may have been legal at the time? Or should it be society as a whole, which has changed the rules relating to what must be done with these sites? We suggest that a combination of these categories could be used with ultimate liability being assigned in a more reasoned and equitable way than it is under the current system.

We feel that, to be consistent with the polluter pay principle, those who caused or had control over the activity or substance that resulted in the contamination - rather than those who were merely associated with the property in some capacity or those who have the deepest pockets - should have primary responsibility for the remediation. "Potentially responsible person" could, for example, be defined as "a person responsible for the discharge that resulted in the contaminated site" or as "a person who caused or authorized the discharge that resulted in the contaminated site."

In addition to this group, those who currently have control over the contaminant's source (such as the current owner or operator who is currently responsible for the source of the contamination) should be included as a secondary category of potentially responsible persons. We have two reasons for this recommendation. First, the Ministry may need to issue an order to a responsible person on an urgent basis to protect human health or the environment from unacceptable risk relating to a contaminated site (i.e., a Category IV site). The current owner or operator has control over the source of contamination and may be the only person available to respond on an urgent basis. Second, a current owner may benefit if the site is remediated. However, to avoid the problems in the current legislation associated with the overly broad definitions of "owner" and "operator," these terms should be given their ordinary legal meanings.

These two proposed "potentially responsible person" categories are somewhat analogous to those who may be liable in a common law nuisance action:

(i) those who had control over the situation that caused the nuisance initially; and

(ii) those who currently have control over the nuisance and thus are able to able to abate it.[72]

To a limited extent, the beneficiary pay principle could also be incorporated in the new definition of potentially responsible person, to ensure that the benefit society as a whole received from the contaminating activity in terms of cheaper products, employment and tax revenue and will receive when a contaminated site is cleaned up, is also reflected in the system. The BC Land Remediation Fund (discussed in section 17) should contribute to the remediation costs where there are orphan shares or orphan sites.

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[72] This is also consistent with the order powers in sections 31 and 33 of the *Waste Management Act*, where responsibility is linked to fault or control over the activity, substance, operation or property that caused or may cause the problem.

Ultimate liability to carry out or pay for remediation is discussed in section 12.

Recommendations for Defining Who Should Be a Potentially Responsible Person

Define those potentially responsible for a contaminated site in a manner that is consistent with the "polluter pay principle," so that those who caused or authorized the discharge that resulted in the contamination will be the primary responsible parties.

Include within the definition of potentially responsible person those who currently have control over the source of the contamination.

Define "owner" and "operator" in a way that reflects the ordinary legal meaning of these terms.

Incorporate, to a limited extent, in the definition of potentially responsible person the "beneficiary pay principle."

Allow remediation orders for contaminated sites to be issued to the newly defined list of potentially responsible persons when it is necessary to protect human health or the environment from unacceptable risks.

12 What Principles Should Be Applied When Allocating Liability?

Under the current legislation, there are three ways in which responsible persons can be liable for the remediation of a contaminated site. The first two mechanisms are typical of those used in other Canadian jurisdictions. The third mechanism is unusual in Canada.

First, responsible persons can be liable to carry out remediation, pay for remediation costs or provide security if they are named in a remediation order issued under section 27.1 of the Act. Second, they can be liable to compensate the government for remediation costs it has incurred under a government debt recovery action initiated under section 28.5 of the Act. And third, responsible persons can be liable in a civil cost recovery action, created under section 27 (4) of the Act, to compensate another for reasonable remediation costs. Section 27 (4) provides:

> … any person, including but not limited to, a responsible person and a manager, who incurs costs in carrying out remediation at a contaminated site may pursue in an action or proceeding the reasonably incurred costs of remediation from one or more responsible persons in accordance with the principles of liability set out in this Part.

The principles of liability are set out in section 27. Section 27 (1) establishes an absolute, retroactive, joint and several liability regime.[73] It provides:

> A person who is responsible for remediation at a contaminated site is absolutely, retroactively and jointly and severally liable to any person or

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[73] Absolute liability means that there are no defences available unless expressly provided for in the legislation. Retroactive liability means that liability is imposed from the time the impugned act was performed onwards. In contrast, retrospective laws impose liability for past actions from the time the legislation was proclaimed onwards. Several liability means that each responsible party pays his or her apportioned share of liability. Joint and several liability means that solvent responsible parties are liable to pay all of the damages, even if that amount exceeds their own allocation.

> government body for reasonably incurred costs of remediation of the contaminated site, whether incurred on or off the contaminated site.

In addition, subsection 27 (3) provides that liability applies even though it may have been legal at the time to introduce the substance into the environment or despite some form of permission from the government that authorized the discharge into the environment.

Stakeholders had numerous complaints about both about the liability principles and the civil cost recovery action in section 27 of the Act.

A Sample of What We Heard from Stakeholders

"[W]e have found the Contaminated Sites regime to be by far the most difficult and onerous legislation of its kind in Canada and it has had a significant financial and logistical impact on the company's operations in British Columbia. The legislation and the disturbingly inequitable philosophy that underpins it are a disincentive against investment in British Columbia ....

"The scope of liability is a key issue.... The imposition of retrospective and retroactive liability on persons of the scale and type under the Act without first establishing that they have somehow acted wrongfully according to standards at the time the act occurred, is contrary to most of the principles upon which our common law system is founded.

"Although the Ministry has repeatedly described the Contaminated Sites Provisions as imposing a 'polluter pays' regime, the reality is that - the regime imposes a much broader and more arbitrary form of liability. Part of this is due to the imposition of joint and several liability, which significantly and unfairly broadens the exposure of Responsible Persons to carry out remediation of contamination to which they have no logical connection even under the tenuous justification for imposing liability under the Act. Part of this is due to the unprincipled manner by which Contaminated Sites are defined under the Act. This can arbitrarily expand the scope of joint and several liability for persons responsible for minimal contamination depending on how the boundaries of the contaminated site are defined at the convenience of a manager or remediator. Finally, part of this is due to the broad and expansive categories of Responsible Person under the

Act, and to the narrow exceptions to that status which are subject to an onerous reverse onus before they can be enjoyed.

"The reverse onus by itself is a significant practical means of expanding the net of persons caught under the Act. For example, it is not necessary to show that Imperial as a past owner or operator of property caused or even knew about contamination at a property before 'prima facie' liability is imposed as a Responsible Person, let alone that it did so in a manner that is blameworthy. The mere fact of ownership or a past operation triggers a reverse onus on Imperial to positively prove facts to escape the liability, which can be impossible when witnesses are long departed or even deceased or files have been discarded. In many cases, it is not possible for Imperial to escape liability even if it can meet the heavy burden of positively proving it did not contribute to contamination on sites. For example, if the contamination was caused by someone who is now impecunious or no longer in existence, Imperial may, as the only remaining 'deep pockets' Responsible Person, be solely liable for remediating such 'orphan site'....

"The liability principles under the Act create significant difficulties for liability allocation in cost recovery actions. The principles of liability are foreign to the common law and there are few principles articulated in the Act to give guidance to the Court as to how to allocate liability among the Responsible Persons when none of them would be 'guilty' of anything at common law. The resulting uncertainty of outcome makes settlement difficult and encourages litigation." **Imperial Oil**

(i) Concerns about Current Liability Principles

Stakeholders also told us that the liability principles and the potential for cost recovery actions under section 27 (4) of the Act led them to make decisions to avoid liability rather than to take the best course of action based on human health, environmental and economic factors. Because of the absolute, retroactive, joint and several liability regime, the liability being assigned is not only disproportionate to a person's degree of contribution to the contamination at a site, but also contrary to principles of fairness that are fundamental to our legal system. Many stakeholders called for a more equitable way of assigning liability and a mechanism where liability can be allocated earlier than is possible under the cost recovery action.

A Sample of What We Heard from Stakeholders

"The Canadian Bankers Association (CBA) fully supports the general principles of equity with regard to environmental liability and remediation responsibilities, which are a foundation of the report…. The industry also notes that the intent of the new legislation will be to create a framework that enables the operation of the normal risk management process, and establishes clear, consistent and fair rules for assigning liability for environmental harm." **Canadian Bankers Association**

"Admittedly difficult, responsible parties and liability should revolve [around] the concept of allocation on the basis of contribution as opposed to the absolute, retroactive, joint and several approach that has been employed in the past. Such action would help define and quantify the risk rather than creating more uncertainty that is a possibility under the current system. Furthermore, we believe, such action, in conjunction with some form of liability exemption, will promote Brownfield development and eliminate the need for the grant system that is suggested in the report." **Cantest Ltd.**

"We agree with the suggestion that graduated levels of responsibility should be tied to key dates when legislation and industry practices changed and society became aware of the problems of contaminated sites." **Teck Cominco Metals Ltd.**

"We agree with the recommendation to apportion liability early in the remediation process. We are also open to the suggestion that greater guidance on how to allocate responsibility could be beneficial. Several of the principles that the panel has suggested using as filters for who is a responsible party (e.g., due diligence, direct causal link), while highly problematic for determining who is a responsible party, are appropriate as factors for determining actual liability. At the same time we expect that defining these principles in law may be difficult, and the end result may be that numerous questions of law have to be brought to the courts from arbitration proceedings…." **West Coast Environmental Law**

"The liability scheme in the Contaminated Sites Legislation clearly embodies a 'deep pockets' approach to allocation of liability. Moreover, the scheme does not reflect the responsibility of society at large for historic contaminated sites. The liability provisions should be amended to ensure that 'polluter pay' in its plain, ordinary meaning is the underlying principle for determining liability." **Business Council of British Columbia**

"The current 'deep pockets pays', or absolute, retroactive, joint and several liability should be altered. The polluter pay principle should be based on actual contribution to pollution, rather than being the responsibility of the last man standing. However, proposed changes to the liability provisions in the CSR are worrisome. Two key principles of the CSR include:

- Reasonable triggers to ensure that sites are investigated and cleaned up at critical points (rezoning, redevelopment, etc.)
- Liability as a compelling reason for firms to go forward and clean up pollution."

Darren Schlamnp, Independent Consultant

(ii) Concerns about Cost Recovery Action

While section 27 (4) created a new right of action that was designed to address a perceived deficiency in the common law, it does not provide an efficient and cost-effective system for allocating remediation costs between responsible parties. Stakeholders told us that the cost recovery action has spawned numerous complex, expensive lawsuits that involve multiple parties and take years to wind through the litigation process. Many actions have been filed, but few have reached trial. These lawsuits divert resources away from the ultimate goal of cleaning up sites. Of necessity, the parties assume adversarial positions (instead of working cooperatively to allocate responsibility and proceed with remediation) because of the severe consequences associated with being found liable in an absolute, retroactive, joint and several liability regime.

We also heard about numerous additional problems associated with the cost recovery action. Although section 27 (4) allows a person to recover reasonably incurred remediation costs, it is of no use to property owners who do not have the resources to remediate their properties and then litigate to recover costs from other responsible persons. Moreover, it is unclear whether the action may be started before all remediation costs have been spent or before certain internal procedures in the legislation have taken place.

Defendants also complained about several inequities associated with the current system. Defendants often do not know about, and hence cannot participate in, the remediation they will ultimately be expected to pay for until after the remediation has been completed and they have been sued. They cannot challenge the reasonableness of the remedial plan, choice of remedial option, or remediation expenses until after the cost recovery action has begun. At that point, the contaminants have already been altered or removed and it is difficult for a defendant to prove that its actions did not cause or contribute to some or all of the contamination at the site. In addition, the remediating party can effectively define the scope of the area considered a contaminated site without notifying affected parties when it seeks to have its remedial plan approved. This in turn influences the extent of joint and several liability for those who therefore qualify as responsible persons for that contaminated site.

A number of stakeholders also told us that they were uncertain when the limitation period for a cost recovery action begins. As a result, many actions were filed just prior to April 1, 1999, in case the limitation period began on April 1, 1997 (when the legislation came into force).

Some stakeholders pointed out that British Columbia's cost recovery action is out of step with the approach of most other Canadian jurisdictions. Apart from giving governments the ability to recover their remediation costs and private parties the ability to recover damages caused by an action that is an offence under the statute (such as a recent spill of a polluting substance), most Canadian jurisdictions have not introduced civil cost recovery actions to allow private parties to recover remediation costs related to historical contamination.[74] Furthermore, in most jurisdictions, joint and several liability - if expressly provided for in the statute at all - is tied to liability to comply with ministerial orders or to pay for government-incurred clean-up costs. It is not tied to private civil cost recovery actions. In short, no other jurisdiction has connected an absolute, retroactive, joint and several liability regime to a civil cost recovery action.

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[74] Section 99 of the Ontario *Environmental Protection Act*, for example, provides for a right of compensation for loss or damage related to spills of a pollutant that causes an adverse effect, but this does not extend to recovering losses related to remediating historical contamination. Section 15 of the Saskatchewan *Environmental Protection and Management Act* contains a right to compensation against persons responsible for a discharge, which is very limited in scope and application. Manitoba's *Contaminated Sites Remediation Act* has an allocation mechanism through which remediation costs can be apportioned between potentially responsible persons following a director's order.

A Sample of What We Heard From Stakeholders

"It is clear that the cost recovery action has not reduced costs for adjacent owners who wish to pursue claims against those responsible for migrating contamination, or for purchasers of contaminated sites who wish to pursue previous owners. In fact, the cost recovery action may actually have increased the costs of pursuing such claims. Under the Legislation in its current form, when the adjacent owner commences its claim intending to name the most significant contributor to the contamination, that named party will claim over against every possible entity caught by the definition of 'responsible person', resulting in a claim often involving 50 or more parties. Most plaintiffs simply cannot afford to participate in such costly litigation. In addition, the cost recovery action can only be relied on where the plaintiff has incurred remediation costs. Again, it simply may not be possible for a private property owner to incur all the costs of remediating the site as a precondition to relying on the cost recovery action." **Business Council of British Columbia**

"The existence of the contamination on our properties has resulted in the bank withdrawing the financing from [the property owners] and they now face bankruptcy and foreclosure. As you know, because we own a contaminated site, we are significantly restricted with what can be done with the property….

"We did absolutely nothing to contribute to the contamination of our properties. However, the legislation DOES NOT protect us as we do not have the resources to take advantage of the protection it may offer. We strongly urge the panel to seriously consider the plight of us and others in the province who find themselves in the unbearable situation of being victimized by large corporate polluters. We urge you to make changes to the legislation to protect those in similar situations." **Property Owners, Salmo, BC**

We also heard that there is a fundamental inconsistency between the absolute, retroactive, joint and several principles of liability set out in section 27(1) of the Act and those provided for in section 35(1) of the CSR. Section 35(1) of the CSR states that a defendant named in a section 27 (4) cost recovery action "may assert all legal and equitable defences, including any right to obtain relief under an agreement, other legislation or the common law." The provision in the CSR appears to allow defences, while the provision under the Act states that liability is absolute, meaning there are no defences. Thus, section 35 (1) may be invalid because a provision in a regulation cannot be inconsistent with, or effectively repeal, a provision in its governing statute.

As well, stakeholders told us that the current system creates a problem of multiple administrative and legal proceedings relating to the same site and often between some or all of the same parties. (This issue is discussed in section 13.)

A Sample of What We Heard from Stakeholders

"Managers have suggested that they will make an order equally against all Responsible Parties, but this simply encourages the most Responsible Persons who bear a disportionate responsibility to be intransigent and delay remediation to force an order that will actually benefit them. Managers have also entered into what amount to allocation hearings without imposing any restrictions on the evidence or the type of submissions, leading to indeterminate and uncertain proceedings that delay remediation. Proper procedures are necessary." **Imperial Oil**

"Joint-and-several liability comes up in two contexts in the legislation: under a Remediation Order, all the parties named are jointly and severally liable to make sure that the Order is complied with, and any could be prosecuted if it is not. Under a cost recovery action, responsible persons are jointly-and-severally liable to anyone who has incurred the costs of remediation….

"In principle, there is no reason that liability under s. 27 should be governed by different principles than those adopted for civil litigation. Pending the results of the civil justice review, the two systems would be harmonized by severing liability when one responsible person sued another for incurred costs of remediation. If the civil justice system adopts a threshold percentage system, such a system will mirror the provisions regarding minor contributor status, and the minor contributor provisions could be more specifically harmonized with the precise threshold system adopted. Joint and several liability with reallocation of orphan shares based on proportion of responsibility could also be adopted.

"If, as recommended, joint-and-several liability is maintained for ordered remediation, it would be desirable to make the final allocation as neutral as possible between ordered and non-ordered responsible parties. Therefore, the ordered parties ought to have the right to pursue other responsible both for their own shares of liability and for a *pro rata* portion of orphan shares." **BC Ministry of Attorney General**

In our view, the absolute, retroactive, joint and several liability scheme creates considerable inequity and violates fundamental principles related to the rule of law. (We are also aware that the Ministry of Attorney General is currently examining the issue of joint and several liability in the civil law as part of its Civil Justice Review Project.) While some of these principles may be justifiable in the context of remediation orders to ensure regulatory efficiency, it is not at all clear that the principles can be justified in the context of a cost recovery action, particularly when the net of responsible parties is so broad.

Some form of remediation order must be available to ensure that the regulatory agency can respond to emergency situations where a contaminated site is having a significant adverse effect on human health or the environment and the responsible persons are not responding appropriately. However, retroactive, joint and several liability are implicit in any order power, and there is no need for express statutory recognition of these principles in the Act.[75]

In our view, the cost recovery action - especially when tied to the absolute, retroactive, joint and several liability scheme - is expensive, adversarial and often detrimental to achieving the goal of remediating the site. However, to ensure that adequate funds are available to remediate high-risk (Category IV) sites, we believe that another process is needed in place of the current section 27 (4) cost recovery action, for allocating costs between the newly defined range of responsible parties, according to a more equitable set of principles of liability. Parties should first attempt to reach a voluntary agreement, apportioning responsibility for remediation costs amongst themselves. If they fail to reach an agreement, liability should be apportioned (through the process we describe in section 13). To facilitate cooperation and an early resolution between responsible persons, the allocation process should be available to parties early on and they should not be required to wait until the remediation is complete. Funds would then be available from a variety of parties who are informed about, and can participate in, remediation from the outset. Each responsible person's share would be fixed as a percentage of the remediation costs or, where appropriate, capped to a maximum dollar value. As necessary, interim and final decisions regarding allocation could be made. Other sites (i.e. Category I – III sites) do not require such a mechanism as any remedial action taking place at these sites would be carried out for market-driven, rather than human health or environmental, reasons.

We suggest that the following principles be used when allocating liability and apportioning remediation costs:

(i) Liability should fall primarily on those who caused or authorized the contamination.

(ii) Liability should be greater for those who are "true polluters" (i.e. those who did not act in accordance with the legal requirements or industry practices of the day) than for those whose activities were appropriate or authorized at the time they occurred. Thus, graduated levels of responsibility could be tied to key dates when laws or industry practices changed.[76]

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[75] Principles of retroactive, joint and several liability are implicit, for example, in the pollution abatement order in section 31 and the pollution prevention order in section 33 of the Act.

[76] We intend that this be one factor that could be taken into account when apportioning remediation costs in situations where evidence establishes that one potentially responsible person's actions were contrary to legal standards or industry practice of the day, while another's were in compliance with

(iii) The extent of a responsible person's liability for remediation costs should be in proportion to that person's degree of contribution to the contamination at the site.

(iv) A responsible person should be responsible only for the physical portion of the site that it has contaminated, rather than for the greater area that may have been contaminated by others.

(v) The BC Land Remediation Fund (discussed in section 17) should pay for orphan shares at contaminated sites and orphan contaminated sites. This will prevent arbitrary assignments of liability and reflect the benefit that society as a whole received when the contamination occurred (in terms of the employment, lower production cost resulting in cheaper products, and tax revenue) and will receive once the property is redeveloped.

(vi) Current owners who have not themselves contributed contamination or undertaken to indemnify another responsible person, should have their liability limited to the difference between the purchase price and the value of the land after remediation. Thus, such owners would be assigned a portion of the remediation costs, in proportion to the degree of benefit they will receive by having the property remediated.

(vii) Potentially responsible persons should be able to raise legal and equitable factors (including rights to obtain relief under an agreement, in other legislation or the common law) as considerations in the allocation process.

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such standards or practice. Thus the person in compliance might be assigned a lesser portion of remediation costs than a person who was not in compliance. It is not intended, however, that the portion attributable to a person in compliance would be paid for by the BC Land Remediation Fund.

As a result, liability could be severed if contamination can be attributed to different parties.[77] In addition, to the greatest extent possible, each divisible portion of a site should be considered separately when remediation orders are issued. In this way, parties who are not involved in a particular portion of a site would not be ordered to take action relating to that portion.

How should the transition to implementing this new set of liability principles and a revised cost recovery mechanism be handled? In the past five years, several cost recovery actions have been filed under section 27 (4) of the Act. We therefore recognize that the challenge is to reduce the level of resources diverted away from remediation into litigation and administrative proceedings, without creating additional unfairness and uncertainty for cases already in the cost recovery system. From a policy perspective, it may be best to resolve all current cost recovery actions under the new proposed allocation process, using the fairer, more legally defensible set of principles for allocating responsibility. Actions against those currently defined as responsible persons could therefore continue, but under the new principles for allocating liability. Further consultation on transition issues may be required.

Recommendations for Allocation of Liability

Replace the absolute, retroactive, joint and several liability scheme in section 27 of the Act with a more equitable set of principles for allocating liability, including the following:

- Liability should fall primarily on those who caused or authorized the contamination.

- Liability should be greater for those who are "true polluters" (i.e., those who did not act in accordance with the legal requirements or industry practices of the day) than for those whose activities were appropriate or authorized at the time they occurred.

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[77] In our view, in the allocation process to the greatest extent possible liability should be several, but not joint or absolute. (It is difficult to avoid the application of some degree of retrospective liability where historical contamination is involved.) We recognize, however, that it may not always be possible to provide evidence to make distinctions in responsibility.

- The extent of a responsible person's liability for remediation costs should be in proportion to that person's degree of contribution to the contamination at the site.

- A responsible person should be responsible only for the physical portion of the site that it has contaminated, rather than for the greater area that may have been contaminated by others.

- The BC Land Remediation Fund (discussed in section 17) should pay for orphan shares at contaminated sites and orphan contaminated sites.

- Current owners who have not themselves contributed contamination or undertaken to indemnify another responsible person should have their liability limited to the difference between the purchase price and the value of the land after remediation.

- Potentially responsible persons should be able to raise legal and equitable factors (including rights to obtain relief under an agreement, in other legislation or the common law) as considerations in the allocation process.

13 How Will Disputes Be Resolved?

Stakeholders overwhelmingly expressed concern about the administrative and legal processes used to resolve disputes relating to contaminated sites. These resources, stakeholders told us, could be much better spent on actually remediating and redeveloping sites in the province. Many requested a more efficient mechanism for resolving disputes in this area.

Stakeholders were particularly concerned that, in the current system, disputes involving contaminated sites must be resolved through multiple administrative and legal processes:

(i) Before a manager issues a remediation order or makes a determination (such as whether a site is a "contaminated site" or who are the responsible persons), parties often send the manager lengthy written submissions, raising complex evidentiary and legal issues.[78]

(ii) Once a determination or order is made by a manager, it is often appealed to the Environmental Appeal Board (EAB), where generally a hearing *de novo* takes place. (Each new determination or amendment to an order is generally dealt with through a separate appeal to the EAB.)

(iii) Once an EAB decision is issued, it too is often appealed on judicial review to the British Columbia Supreme Court.

(iv) Issues concerning allocation of remediation costs between responsible persons are dealt with in different proceedings than those described in (i) to (iii). They must await determination by the British Columbia Supreme Court as part of a separate civil cost recovery action under section 27 (4) of the Act. In such an action, a person who has incurred remediation costs often sues numerous other potentially responsible persons, who then may join additional defendants in the action or issue third-party claims against each other (and, in some cases, to their insurers).

(v) Separate lawsuits may be brought, based on common law tort or contractual causes of action, where there is a dispute over contamination involving neighbouring properties or involving contractual provisions, such as those under a contract of purchase and sale or a lease. (These issues may also be raised during a cost recovery action.)

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[78] Sections 26.4 and 27.1 of the Act.

We heard concerns from stakeholders about problems associated with each of these processes. For example, Ministry personnel complained that the processes connected with orders or determinations take up an inordinate amount time, divert staff attention from more pressing demands, and impede staff in responding quickly to protect the environment or human health. On the other hand, the parties want even greater aspects of procedural fairness incorporated into these proceedings, which in turn would require greater Ministry involvement. Both the Ministry and stakeholders told us that managers are often required to venture out of their technical area of expertise when considering complex legal issues. Some stakeholders also complained that the Act delegates decision-making authority to too low a level. They felt if the decision-making authority rested with the Minister or a director, there would be greater consistency among decisions made in different regions of the province.

Numerous complaints about the EAB proceedings were voiced as well, both by stakeholders and Ministry personnel. The EAB generally conducts a hearing *de novo,* reconsidering some or all of the evidence and arguments that the parties presented to the manager. Stakeholders told us that the hearings are lengthy and expensive, in part because the Board fails to control the type of evidence admitted. Some stakeholders also expressed concern about EAB members' lack of sufficient expertise to rule on contaminated sites issues, and about the length of time - often months - it takes the EAB to reach decisions. Many parties also complained that each time the manager amends an order or makes a new determination for the same site, that decision becomes the subject of a separate EAB appeal.

A further concern is that, because there is so much uncertainty associated with cost recovery (which we discussed in section 12 of this report) the courts have come out with conflicting judgements on some of the issues.

In our view, a fundamental problem with the multiple processes is that they involve interrelated issues. For example, determinations or orders related to responsible person status, the extent and method of remediation required, and the boundaries of a contaminated site, necessarily affect issues that are part of the cost recovery action (such as whether the remediation expenses were reasonable and who is a responsible person for purposes of a cost recovery action). Contractual provisions or common law causes of action also affect who will ultimately bear some or all of the remediation costs at a site. The result is that these interrelated issues are reargued in various forums, with complex submissions and evidence presented in each round. This adds considerable time and expense for all those involved.

Many stakeholders suggested that binding arbitration be used in place of the current multiple processes and that allocation be allowed early in the remediation process. Other stakeholders thought that the EAB process could be refined to deal more effectively and efficiently with contaminated site disputes. Many lawyers practising in the area of environmental law said they supported the current processes, but called for the legislation to clarify a number of issues pertaining to the cost recovery action.

A Sample of What We Heard from Stakeholders

"Introduction of the Contaminated Sites Legislation has led to a significant increase in litigation, in the form of both increasingly lengthy and complex appeals to the Environmental Appeal Board ("EAB") and numerous multi-party lawsuits that have been commenced and will ultimately work their way through the litigation process into the courts. Once in the courts, those cases will take years to reach a final resolution. The cost of such litigation is significant and diverts resources away from remediating sites or addressing other significant issues.... There is a strong consensus, not only in the business community but also among other stakeholders, that it is essential to find alternatives to the courts to resolve contaminated site disputes. Many have recommended that the allocation panel process be 'activated.' The difficulty with the allocation panel process is that the panels do not have the necessary authority to compel the production of documents or to compel the attendance of parties at the proceedings. Therefore, the panels may not have access to all relevant information necessary to make a sound decision. Moreover, and perhaps because of these limitations, decisions of panels are not binding." **Business Council of British Columbia**

"I believe that the optimal approach for dispute resolution is a flexible one, with a focus on alternative dispute resolution through the auspices of a revitalized Environmental Appeal Board. For several reasons, discussed below, I believe that an emphasis on other mediation and arbitration mechanisms is misplaced. The Panel's laudable focus has been on improving certainty, accountability, cost-effectiveness and the appropriate deployment of private funds. While certain reforms to the EAB are warranted in order to enhance its effectiveness in the contaminated sites context, it is my view that the EAB can and should be enhanced and rededicated to disputes involving contaminated sites, and that it is best placed to achieve the laudable goals set by the Panel. Given that the Government has given every indication that the EAB will remain in place to hear appeals in other environmental areas, this solution is particularly cost-effective and offers the best coherence with other government initiatives in the environmental and resource contexts. Finally, I also believe that retaining the cost recovery action as an option for private parties is advisable. It is also conceivable that private arbitration could be available to parties as a third option." **T. Murray Rankin, Arvay Finlay**

"We are concerned that commercial arbitration and the continued availability of common law remedies may lead to multiple proceedings. We are also concerned that commercial arbitration may prove as expensive or more expensive than court litigation." **West Coast Environmental Law Association**

"The CPPI supports the recommendation to move dispute resolution on site liability to an alternate dispute resolution process. We would recommend that this mechanism have the capability to bring all parties to the table. There must be procedural fairness and independence of the decision maker to make this process meaningful and to keep appeals out of the courts. To avoid the lengthy, controversial and expensive administration process that characterizes current disputes, it is important that contaminated site be defined by reference to contaminant sources rather than legal boundaries or that the extent of liability of responsible persons be defined by reference other than a contaminated site.... We recommend that the Panel clarify its recommendation that allows neighbours and other parties to participate in the dispute resolution process to ensure that only affected neighbours and affected other parties can become involved." **Canadian Petroleum Products Institute**

"BCR agrees with the Advisory panel's recommendation for alternative dispute resolution. BCR cautions that intervener status must be carefully considered in order to ensure that the dispute resolution system remains efficient." **BC Rail**

We believe that a different process for resolving disputes related to contaminated sites is necessary. In our view, to reduce conflict and avoid lengthy, costly and multiple administrative and legal processes, it would be preferable if all such disputes were resolved through a single process, which incorporates both mediation and adjudication.

The process should:

- be flexible, efficient and responsive, and tailored to the needs of the parties;
- allow a dispute to be resolved as early as possible and as the need arises;
- encourage or assist parties to resolve disputes voluntarily;
- where voluntary resolution is not possible, allow a dispute to be decided by a neutral party or panel that holds sufficient legal and technical expertise to understand the issues and has the authority to issue a binding and enforceable ruling;
- include a trigger in the legislation that requires parties to participate in the dispute settlement process;
- prevent the same issues and evidence from having to be re-argued in a variety of legal and administrative proceedings (thus minimizing the time and resources diverted into such proceedings);

- allow for an appropriate level of participation by other affected parties (such as neighbours);
- relieve Ministry officials from the burden of having to hear and determine complex legal or evidentiary issues before making an order or other determination, so they can focus on and respond quickly to protect human health and the environment;[79] and
- include a mechanism whereby decisions made by adjudicators may be appealed to the court in limited circumstances.

Preferred Option: Alternative Dispute Resolution

The Panel believes that an alternative dispute resolution (ADR) model, which allows for both mediation and binding arbitration, is the best mechanism for achieving the objectives set out above. We also have a number of suggestions with respect to the specific ADR model that could be adopted.

First the Act should include a provision requiring that all disputes involving contaminated sites be resolved through ADR. This provision would be the trigger to bring parties into the ADR process. For example, if a disagreement or dispute about a "contaminated site" remained unresolved among potentially responsible persons, the Ministry and, in certain circumstances, other affected parties, any person could give written notice to the others requiring that the unresolved issues be submitted for ADR.

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[79] The powers given to a manager or director to issue orders are intended to prevent, protect or repair damage to the environment in an efficient and effective manner. As stated by the Supreme Court of Canada in *R. v. Consolidated Maybrun Mines Ltd.*, [1988] 1 S.C.R. 706 at para 59:

> Such a purpose requires rapid and effective means in order to ensure that any necessary action is taken promptly. This purpose is reflected both in the scope of the powers conferred in the Director and in the establishment of an appeal procedure designed to counterbalance the broad powers conferred on the Director by affording affected individuals an opportunity to present their points of view and assert their rights as quickly as possible....

Similar to the dispute settlement provisions in numerous commercial agreements, mediation could be required as the first step (unless the parties opted to go directly to arbitration). If the parties failed to resolve the dispute through mediation within a defined period of time, the dispute would proceed to binding arbitration. Parties would be required to participate in any arbitration that is requested. (The process should, however, allow an arbitrator to find that certain parties need not necessarily participate.)

Second, the issues that constitute a disagreement or dispute about a contaminated site should be defined in the legislation. Examples include disagreements or disputes over:

(i) whether an area site is a contaminated site and the boundaries of a contaminated site;

(ii) who is a responsible person;

(iii) issues that arise in developing or implementing a remedial action plan;[80]

(iv) remediation orders and other determinations made by the regulatory agency;[81] and

(v) how costs should be apportioned between the responsible persons.[82]

In addition, it would be preferable if common law disputes involving contaminated sites were also resolved through the ADR process, as the issues involved in those disputes are often interrelated to the disputes described above. However, a decision of an arbitrator should not impact on the common law rights of parties unless the arbitrator has adjudicated directly on the issue.

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[80] The intent to is to allow these issues to be dealt with to the greatest extent possible through an ADR process, and not be encumbered by the complex administrative law proceedings that now precede managers' determinations or orders in the current system. In this way, regulatory officials can focus on issuing an order quickly where it is necessary to protect the environment or human health from substantial harm.

[81] Under this proposed model, the EAB would no longer hear appeals relating to contaminated sites.

[82] ADR would thus replace the current section 27 (4) cost recovery action.

Third, rather than create a separate government-appointed dispute resolution panel or re-activate the Allocation Panel, we recommend that mediation and arbitration be carried out using existing mediation and arbitration mechanisms. Accordingly, we think that ADR for contaminated sites should be administered by the British Columbia International Commercial Arbitration Centre, under the *Commercial Arbitration Act*[83] and the Arbitration Centre's *Rules of Procedure for Domestic Commercial Arbitrations*. Arbitration and mediation could be tailored to fit each particular dispute and the needs of the parties, and have procedural safeguards already provided for in the *Rules of Procedure*. Under the *Commercial Arbitration Act*, arbitration awards are binding and enforceable in the same manner as a judgment or order of the court is. This arbitration process also contains a limited appeal mechanism.

The Panel heard concerns from some stakeholders about the need to ensure the parties in an arbitration be provided with sufficient rights relating to discovery of documents and examination of witnesses to ensure that the mediator or arbitrator has access to all the relevant information necessary to adjudicate on complex legal and technical issues. We believe that these concerns can be addressed by, for example, incorporating specific provisions from the Supreme Court Rules into the ADR process.[84]

Parties to the dispute should be able to select an arbitrator or arbitration panel that has suitable experience and legal and technical expertise. Where parties are unable to agree on an arbitrator, an application could be made under the *Commercial Arbitration Act* for the court to appoint an arbitrator.

A fourth general suggestion is that the ADR model be adapted to provide for an appropriate level of participation by affected neighbours or other parties. If an affected neighbour is not a party to the dispute, he or she should be provided an opportunity to participate in the mediation or arbitration to the extent that the decision will have an impact on his or her rights.

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[83] R.S.B.C. 1996, c. 55

[84] B.C. Reg. 221/90.

Finally, the cost of mediation and arbitration should be borne by the parties to ensure that they work efficiently to achieve a timely and cost-effective resolution.

We found that ADR is being used to resolve contaminated site disputes in several jurisdictions we studied. For example, to ensure that resources are used cost-effectively during the site management process rather than diverted to litigation, Nova Scotia uses ADR as the preferred means of resolving disagreements or disputes between parties responsible for a contaminated site.[85] Manitoba uses a combination of mediation and adjudication by the Clean Environment Commission to resolve disputes over how costs or responsibility should be apportioned when potentially responsible persons cannot reach agreement amongst themselves.[86] Several American jurisdictions also routinely use ADR processes for these issues.[87]

Currently in British Columbia, more than 35 statutes permit or require the use of arbitration to resolve various types of disputes.[88] Some statutes direct that arbitrations carried out under them must abide by the provisions of the *Commercial*

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[85] In Nova Scotia, the parties are first encouraged to resolve disputes or agree on aspects of remediation (including apportionment of costs) voluntarily. If a disagreement or dispute between the owner, other affected parties, or the Nova Scotia Department of the Environment remains unresolved, section 4.2 of the *Guidelines for Management of Contaminated Sites in Nova Scotia* provides that any party may give written notice to the others requesting the unresolved issues to be submitted for ADR. Either mediation or arbitration may be chosen. In addition, the Nova Scotia *Environment Act* allows the Minister to refer any matter to ADR, including allocation of costs between parties responsible for a contaminated site and any dispute arising over site responsibility or remediation.

[86] See sections 22 and 23 of Manitoba's *Contaminated Sites Remediation Act*.

[87] For example, the State of Oregon Department of Environmental Quality uses both mediation and independent review in dispute resolutions relating to contaminated sites addressed through the Independent Cleanup Pathway. In addition, the US Department of Justice and the Environmental Protection Agency routinely use ADR to resolve disputes on complex Superfund sites.

[88] For example, the *Coal Act*, R.S.B.C. 1996, c. 51, *Labour Relations Code*, R.S.B.C. 1996, c. 244, and the *Land Act*, R.S.B.C. 1996, c. 245, the *Mineral Tenure Act*, R.S.B.C. 1996, c. 291, the *Petroleum and Natural Gas Act*, R.S.B.C. 1996, c. 361, the *Railway Act*, R.S.B.C. 1996, c. 395, and the *Range Act*, R.S.B.C. 1996, c. 396.

Arbitration Act.[89] Other statutes establish their own rules and procedures for arbitration and, in some cases, adopt the rules of court on issues such as the production of documents, examination for discovery and pre-trial examination of witnesses.[90]

Second Option: Reformed Environmental Appeal Board

Some stakeholders suggested that a reformed EAB might be able to adjudicate contaminated site disputes, if a separate division of the EAB were created with adjudicators who had specific expertise to rule on such disputes. In addition, it was suggested that some of the aspects of ADR could be incorporated into the EAB process. This approach would promote greater institutional knowledge and public participation than is possible under a pure ADR model. In addition, some of the costs associated with resolving disputes would be borne by the society as a whole, since the EAB members and administrative structure are paid for by the government.

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[89] For example, under the *Land Act* (section 91) a dispute arising over the amount of compensation set by the government and owed by one person to another for the loss of land following a resurvey may be referred to arbitration. The Act provides that the *Commercial Arbitration Act* applies to arbitration and the award is binding on the parties to the arbitration.

[90] For example, the *Mineral Tenure Act* provides for arbitration to settle disputes. The arbitration rules and procedures differ depending upon the dispute at issue. For example, disputes relating to compensation where rights have been expropriated under the *Park Act,* R.S.B.C. 1996, c. 344 may go to arbitration and procedures are set out in the *Mining Rights Compensation Regulation*, B.C. Reg. 19/99. This regulation provides that the Rules of Court regarding the production of documents and examination of witnesses apply to proceedings before the arbitrator. Section 18 provides:

> Subject to section 16(2), the Rules of Court relating to the following apply to proceedings before the arbitrator:
>
> (a) subpoenas to witnesses;
> (b) discovery and inspection of documents;
> (c) examination for discovery.

Section 53 of the *Railway Act* provides that resolution of disputes over compensation payable by a company to landowners for their land or the damage done to it must be settled by the Expropriation Compensation Board ("Board") under the *Expropriation Act*, R.S.B.C. 1996, c .125. The Expropriation Compensation Board Practice and Procedure Regulation, B.C. Reg. 452/87, sets out the powers of the Board. Section 12 provides the following:

> The rules of court relating to
>
> (a) discovery and inspection of documents,
> (b) examination for discovery,
> (c) pre-trial examination of witness, and
> (d) discovery by interrogatories,
>
> apply to proceedings before the Board.

We acknowledge that many of the elements of the ADR model discussed above could be incorporated into a reformed and expanded EAB system. The EAB could be the forum in which all contaminated sites disputes are resolved. The EAB process could incorporate ADR mechanisms within it. For this alternative to be implemented, however, the EAB would have to undergo significant change, and that would require increased government funding. For example, to create a specialized division of the EAB to rule on contaminated sites, individuals with the necessary expertise would have to be recruited to serve as EAB members.[91] Procedural rules and mandatory decision-making time frames would also have to be implemented.

Recommendations for Resolving Disputes

Implement a single process for resolving disputes related to contaminated sites, replacing the multiple administrative and legal processes associated with the current system. Adopt alternative dispute resolution, which includes mediation and binding arbitration, as the process.

14 What Mechanisms Can Be Used to Provide Closure of Liability?

Stakeholders called for mechanisms to limit future liability associated with historical contamination of a site. The lack of certainty and finality provided by the current legislation is one of the most significant reasons there are so many under-utilized and undeveloped sites around the province.

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[91] Attracting persons to serve on the EAB is difficult in part because of the limited compensation offered, the part-time status and the potential for conflicts among persons with sufficient technical or legal experience, particularly with contaminated sites in British Columbia. By contrast, the advantage of an ADR process is that the parties would be free to appoint a mediator or arbitrator or panel with sufficient expertise relating to the particular dispute. There is no government-related administrative structure to maintain. And a person who serves as an arbitrator or mediator can more easily continue to serve his or her existing client base as a lawyer or consultant in British Columbia.

Even after parties remediate a site and receive a Certificate of Compliance, they are afraid they might once again be responsible if CSR numerical standards are revised, Ministry policies or protocols change, the land is developed for another purpose, or a pocket of contamination has been missed and is later discovered. Current and potential owners, occupants, lenders, investors, insurers and consultants also have concerns because the existing system provides no assurance about how long potential liability might continue, or what the costs of the potential liability might be due to the absolute, retroactive, joint and several liability principles.

The result of all this is that potential purchasers or parties in a position to develop properties are reluctant to act.

A Sample of What We Heard from Stakeholders

"[A] party who completes remediation of a site should be exempted from future liability for remediation on the site if standards change." **Teck Cominco Metals Ltd.**

"Liability should be finite, certain and grandfathered in the event of a conveyance of property (except of course where new operations cause or exacerbate contamination). Such a system will foster redevelopment of Brownfield sites and will assist in maintaining property values." **BC Rail**

"Once a certificate of compliance has been obtained either from a Roster member or from MWLAP in the case of a high-risk site, there should be no further liability for historic contamination associated with that site unless there was fraud or misrepresentation in securing the certificate. This limitation of liability should extend to both regulatory orders and civil claims…. Providing an end to liability will establish a level of certainty and finality which is required to encourage business investment and economic development." **Business Council of British Columbia**

"You state that 'No Further Action' letters can only be reopened under limited circumstances including 'common law actions related to off-site contamination'. The only situation where this might be appropriate is where the off-site contamination was not addressed at the time of issuance of the 'No Further Action' letter, as otherwise, all of the closure proposals should apply equally to on-site and off-site contamination." **Imperial Oil**

"The BC Business Council has proposed that voluntary remediation agreements (VRAs) and certificates of compliance under the legislation be 'liability shields' from all future liability, unless the VRA or certificate was acquired fraudulently or a risk specifically addressed in the 'shield' comes to pass.... Industry funding for a compensation scheme could be created to fund any potential future liabilities. It is inappropriate to put the fiscal risk on the regulator who approves the certificates of compliance.... The BC Business Council's proposal deserves serious consideration, as a means to reduce duplication of process and additional transactional expenses. If implemented, it would require some expansion of the ability of the legislation to provide compensation to affected adjacent landowners and other parties who have suffered measurable losses.... This might be desirable in itself, both because compensation is sometimes a far more cost effective remedy than remediation, and because of the difficulties faced by impacted property owners in proceeding with court action.... It is important to consider the legislation not in isolation, but in conjunction with the common law.... The legislation should therefore either expressly preserve civil causes of action whatever approvals have been given, or bring compensation to affected parties within its scope." **BC Ministry of Attorney General**

To encourage redevelopment of commercial and industrial properties in British Columbia, the Panel believes it is absolutely critical that liability associated with historical contamination be finite and certain. We propose a number of mechanisms for achieving this, including:

(i) Records of Site Condition and No Further Action Letters;
(ii) Prospective Purchaser Agreements;
(iii) Private Agreements Allocating Liability; and
(iv) Limitation Periods Terminating Liability.

(i) Records of Site Condition and No Further Action Letters

A Record of Site Condition does not in itself bring about "closure" of liability. Rather, it provides greater certainty by establishing a baseline against which the environmental conditions on the site are assessed until the land use changes. The

Record of Site Condition works in conjunction with a No Further Action Letter, which is the mechanism that provides the party responsible for the site with a certain degree of closure.

As discussed in section 7, certainty would be enhanced by filing a Record of Site Condition because the numerical values at the time it is filed would continue to be applicable as long as the land use stays the same and any required risk management measures are maintained. These values would apply as remediation objectives in the future should an owner elect to remove all substances of concern from the site. And, if numerical values change in the future (e.g., because new substances of concern are added as screening values) and an assessment is made that further risk management or remediation is required to protect human health or the environment from an unacceptable risk, the current and past owners of the site would not bear the increased costs of remediation. Instead — because the revised screening values reflect new knowledge and a change in social policy — the costs would be paid out of the new proposed BC Land Remediation Fund (see section 17). In addition, as long as the land use were to remain the same, further investigations of the site would not be required. Should the current owner or a subsequent owner change the land use, however, the numerical screening values for the new land use would apply.

The letter confirming that no further action is required for the stated land use is intended to provide comfort to third parties (such as bankers, municipalities and prospective purchasers) that the site is fit from an environmental perspective for its intended use, and to bring about closure of the liability that arises under the legislation. The form of "comfort letter" could continue to be called a Certificate of Compliance, or it could be called a No Further Action Letter. We prefer the latter term, which is used in a number of American jurisdictions, as it is more descriptive for third parties. In response to the problems stakeholders raised about the lack of acceptability of Conditional Certificates of Compliance, we recommend that there be no distinction between letters with conditions and those without. Accordingly, the letter could specify risk management measures that need to be maintained at the site, or could impose land use restrictions that would be noted in the joint contaminated sites and land title registry (discussed in section 7).

To encourage parties to actively contribute to site investigation and remediation, all those who participated should be named in the comfort letter. In this way, they would benefit from the "liability shield" related to historical contamination on the site. They and future owners and occupants would be exempt from further liability under the Act for historical contamination, provided they maintain systems related to risk management (as specified in the letter) and do not change the land use in a way that alters the exposure pathways or adds more contamination. On the other hand, a person who changes the land use would fully bear the risk management or remediation costs (if there are any) associated with making that change.

To provide even greater certainty about the limits of liability, the Panel suggests that a No Further Action Letter be allowed to be "reopened" in very limited circumstances. For example, it could be reopened where:

- (i) the letter was obtained through misrepresentation or deceit;
- (ii) a person responsible fails to maintain the required risk management systems; or
- (iii) an unrecognized imminent risk is discovered and there is an urgent need to intervene to protect human health and the environment.

This is in contrast to the current situation in which, under section 28.7 of the Act, Certificates of Compliance and Conditional Certificates of Compliance are permitted to be reopened for a variety of reason including if CSR numerical standards change.

Throughout this process it is important to achieve a balance between providing closure of liability and ensuring that issues related to off-site contamination are addressed. We therefore recommend that the Licensed Environmental Professional (LEP) determine, as part of the investigation and risk classification phase, whether the site has a source of contamination that poses an unacceptable human health or environmental risk to off-site receptors and thus requires remediation or risk management measures. This determination would have to be done before the Record of Site Condition is filed and the No Further Action Letter is issued. In our view, it is inappropriate for an environmental statute to provide a scheme for addressing off-site issues that have nothing to do with an unacceptable risk to human health or the environment. The purpose of the statute should be to protect human health or the environment — not to protect private parties from economic loss. That issue and all others unrelated to unacceptable environmental and human health risks are best dealt with by the common law.

The continuing availability of common law actions after the issuing of the No Further Action letter is a complex issue. The National Brownfield Redevelopment Strategy Task Force is considering the issue of closure of civil liability following regulatory approval. The task force is expected to release its strategy report early in 2003.[92] We suggest that its recommendations be considered to ensure that greater consistency is achieved throughout Canada when implementing measures to limit liability related to historical contamination.

(ii) Prospective Purchaser Agreements

To encourage the purchase and redevelopment of brownfield sites, the Panel recommends that those who agree to purchase, redevelop and undertake remediation of historically contaminated sites be exempt from civil and regulatory liability. A prospective purchaser exemption would be based on an agreement between the prospective buyer and the regulatory agency.[93] Such an agreement is currently being used in several American jurisdictions to encourage brownfield redevelopment.[94] An exemption is provided when a prospective purchaser — who is not currently liable for any contamination or remedial action at the site and is not in any way connected to the vendor — agrees to purchase and either redevelop the site or reuse the existing facilities on the site that would otherwise be left underutilized because of the historical contamination. The prospective purchaser is required to undertake the agreed-upon risk management or remediation activities in exchange for an exemption from civil and regulatory liability relating to historical contamination. Eligibility for such agreements should be limited to those prospective purchasers whose activities are not expected to add new contamination. As appropriate, unanticipated third-party liability related to an unacceptable human health or environmental risk could be paid for out of the BC Land Remediation Fund.

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[92] National Brownfield Redevelopment Strategy Task Force, *Helping to Build Sustainable Communities: A National Brownfield Redevelopment Strategy for Canada.* http://www.nrtee-trnee.ca/eng/programs/Current_Programs/Brownfields_Strategy/SOD_Brownfields-Strategy/SOD_Brownfield-Strategy_e.htm

[93] Section 29(1) of Manitoba's *Contaminated Sites Remediation Act* recognizes prospective purchaser agreements.

A prospective purchaser agreement is in some ways similar to the voluntary remediation agreement in section 27.4 of the Act. However, it is available to prospective purchasers rather than to responsible persons. Voluntary remediation agreements should continue to be available to responsible persons, but amendments should be considered to increase the use of this mechanism.

Finally, when establishing a mechanism to attract prospective purchasers to redevelop contaminated sites, consideration should be given to the existing statutory provisions similar to those aimed at encouraging the redevelopment of contaminated mine exploration and mine sites.

(iii) Private Agreements Allocating Liability

Another effective mechanism to encourage remediation and redevelopment in the province and ensure closure of liability is the recognition of private agreements that contain provisions allocating civil and regulatory liability for contamination between the contracting parties. This, in effect, allows parties to assign the risks associated with both civil and regulatory liability.

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[94] See for example, *Oregon Revised Statutes* 285A.185. Many U.S. jurisdictions also use a "covenant not to sue" model.

Under the current regime, landowners who sell brownfield properties remain open to potential claims from future owners or others, and to future regulatory actions. As a result, owners often choose not to sell or remediate because the potential liability exceeds the sale proceeds. We believe that owners should be allowed to contractually transfer liability when they sell a site. In transferring liability along with the land, the purchaser, who stands to benefit from a future change in land use after remediation, takes on the potential liability. That purchaser can subsequently achieve closure of liability by undertaking the necessary risk management or remediation activities and obtaining a No Further Action Letter.

Although under section 27.1 (4) (a) of the Act, a private agreement that allocates liability is a factor the Manager is currently required to consider in determining who should be named in a remediation order, such agreements can be disregarded where taking them into account would "jeopardize remediation requirements." The EAB has also narrowly interpreted what constitutes a private agreement respecting liability for remediation. In addition, while parties can contractually allocate liability, such allocation is binding only between the contracting parties and may not apply, for example, in a cost recovery action.

If a provision were introduced into the contaminated sites legislation to give greater recognition to contractual allocations of liability, certain statutory safeguards would be required. For instance, statutory recognition of private contracts allocating liability might be limited to situations where the party assuming the liability has sufficient means (or provides some form of insurance) to guarantee its ability to undertake necessary remediation or respond to potential civil claims. Again, as we noted above, if any such provision were introduced into British Columbia legislation, we suggest that the recommendations of the National Brownfield Redevelopment Strategy Task Force be considered.

(iv) Limitation Periods Terminating Liability

To promote greater certainty in the marketplace while at the same time protecting innocent third parties, civil liability should be made subject to a clearly defined limitation period. In our view, the limitation period for civil actions related to historical contamination should be tied to a clearly defined period (e.g., 5 or 10 years) following the issuance of a No Further Action Letter. The date the No Further Action Letter is issued should be noted in the joint contaminated sites and land title registry. Prior to the expiry of the limitation period, rights of potential third-party claimants are preserved and they could investigate the environmental conditions of their properties. Where there is a need to intervene after this period to protect human health or the environment from unacceptable risks, the BC Land Remediation Fund could be accessed.

Both the National Brownfield Development Strategy Task Force and the British Columbia Law Institute have considered issues related to limitation periods, in particular, the length of the ultimate limitation period and the triggering event for the start of a limitation period.[95] We believe that consideration should be given to the recommendations of both groups to ensure consistency both with other Provincial statutes and policies that may be adopted by other Canadian jurisdictions.

Recommendations for Mechanisms to Provide Closure of Liability

Allow a single form of comfort document to be issued by the Ministry (or appropriate delegate) confirming that no further action is required and recognizing that the land is appropriate for a particular land use. The document may specify conditions to be maintained and should exempt those who participate in, or contributed to, site investigation and remediation (and future owners and occupants as long as the land use does not change) from liability under the Act associated with historical contamination, subject to limited exceptions.

Create a prospective purchaser exemption exempting the purchaser of a brownfield site from civil and regulatory liability associated with historical contamination in exchange for redeveloping the site and undertaking agreed-upon remedial activities.

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[95] British Columbia Law Institute, Report No. 19, *Ultimate Limitation Period: Updating the Limitation Act* (July 2002). The report contains the recommendations of the British Columbia Law Institute in relation to section 8 of the *Limitation Act*. A key recommendation is that the 30-year ultimate limitation period be reduced to 10 years and that time under the proposed ultimate limitation period begin from the date of the act or omission that constitutes a breach of a duty.

Allow greater recognition of private contracts allocating civil and regulatory liability for historical contamination.

Provide for a definitive limitation period that terminates civil liability related to historical contamination.

Consider the recommendations of the National Brownfield Redevelopment Strategy Task Force for limiting civil and regulatory liability for historical contamination, to promote greater consistency in approach between British Columbia and other Canadian jurisdictions.

15 What Should the Role of the Regulatory Agency Be?

Stakeholders expressed concerns about the way the Ministry carries out its functions in the current contaminated sites system. It is clear from stakeholder comments that the Ministry has been significantly under-resourced to carry out its role in the existing highly prescriptive regime.

A Sample of What We Heard from Stakeholders

"Currently there is a lack of consistency in the interpretation of Ministry policy and protocols.... The various Ministry Regional Offices interpret protocols differently.... There is the perception and underlying outlook that industry cannot be 'trusted', that they are 'lawbreakers' because they have 'contaminated' sites. **BC Building Corporation**

"[I]nconsistency among regions and between regions and headquarters is a common problem that businesses must deal with when interacting with the Ministry. Regional Ministry offices do not always respond to requests and directives from Ministry headquarters.... Some MELP regional and sub-regional offices do not have the technical competency to administer the Contaminated Sites Legislation, and the interpretation of the Legislation and the supporting documents varies from region to region." **Business Council of British Columbia**

"Regulatory agencies should apply consistent standards and consistent administration through a centralized office." **BC Rail**

"Baseline regulatory functions must be maintained by government.... Private sector contractors are not subject to the same levels of accountability as public employees [and] ... do not have the same level of institutional background and experience as those in the public service charged with administering standards." **West Coast Environmental Law**

"For the Ministry to provide timely management of issues with potential health or environmental risk concerns there needs to either be a reallocation of the services provided by the Ministry or improved funding to support these services." **Roster of Professional Experts**

Given the frequency of stakeholder concerns the Panel heard regarding the Ministry' role in the existing process, and our review of individual cases, we believe that the contaminated sites management program in the province must be redefined and the Ministry's role within that program changed.

The current regime requires Ministry oversight of all sites regardless of their level of risk. The Ministry Service Plan, in contrast, requires that government focus only on high risk sites. Our vision is one of an adequately resourced, professional regulatory agency that oversees Category IV sites, develops science-based standards and guidelines, undertakes legislative and regulatory reforms, and ensures that high environmental standards are maintained through active auditing, compliance monitoring, and enforcement. These areas of focus represent a radical change in the way that contaminated sites are currently managed and administrated in the province. Our proposal for a new review mechanism (site assessment and remediation program) is discussed in section 7 and will define a different way of doing business, where agency resources will be used in a reasonable, efficient and proportionate manner.

An independent contaminated sites program with a new organizational structure would be the catalyst for an enhanced corporate mission that would focus government resources on service delivery, accountability and performance.

The new organizational structure we propose would have three key elements:

- A separate and unique agency to carry out contaminated site responsibilities;
- An Executive Director with the mandate to oversee the agency's activities and report annually to the Minister; and
- A focused, functional structure under a single statutory decision-maker.

Within this new structure, agency personnel involved with contaminated sites would be Licensed Environmental Professionals, with at least one such licensed professional being located in each regional office to act as a local liaison for contaminated sites activities. To expedite this component of the new structure and to foster better understanding between the private and public sectors, a secondment program would be established to encourage the exchange of professionals between the private consulting sector and the agency.

Our preferred option for implementing this new program is the creation of a special operating agency to administer the contaminated sites regime. A special operating agency has three advantages over a program within the Ministry. First, it allows for more transparent public oversight by an independent board, with representatives of provincial government ministries, municipalities, industry and environmental groups. Second, a special operating agency can be self-funded and can exercise greater control of revenues and expenditures - in short, such an agency offers a more cost-effective way of delivering the required services. Third, a special operating agency can establish a new corporate culture among those players regulating contaminated sites and ensure that the new process is timely, responsive and accountable.

Another option is to incorporate as many of the aspects of a special operating agency into an independent unit within the Ministry.

Under either option, the regulatory agency would be responsible for 10 main tasks:

- Overseeing the identification and remediation of high-risk (Category IV) sites;
- Issuing "no further action" letters for all categories of sites;
- Developing and maintaining science-based standards and guidelines for contaminated site management that recognize British Columbia's unique geography and socio-economic factors;
- Ensuring the enforcement of high environmental standards by monitoring industry practices and remediation activities;
- Administering information management systems;
- Providing guidance, direction and information to the public and private sector;
- Implementing environmental management and pollution prevention initiatives to prevent new contaminated sites being created;
- Developing and maintaining the legislative and regulatory regime;
- Promoting efficient intergovernmental relations and harmonization initiatives; and

- Creating an independent board with the mandate to oversee the self-governing Licensed Environmental Professional system (discussed in section 8).

The regulatory agency's role in the management of contaminated sites is directly dependent on an adequate source of funding. The current Ministry Service Plan calls for a self-funded organization without Ministry base funding.[96] Sufficient resources are needed to establish and strengthen the governance framework required both to implement the new process and government initiatives and to meet the government's goal of having safe, healthy communities and a sustainable environment.

Many of the problems identified during our review have been a result of underfunding in the management and administration of contaminated sites in the province. For example, staffing in the Ministry for the administration of contaminated sites is currently set at 24 positions.[97] Compared with that in other jurisdictions in the Pacific Northwest, this resource allocation - particularly in light of the breadth and complexity of the existing Act and Regulations in British Columbia - is significantly lower, as shown below.

Jurisdiction	Population	Staff Positions[98]	Population/Position
Alaska	63,5000	85	~ 750
Washington	6,000,000	145	~ 41,000
Oregon	4,000,000	80	~ 50,000
Alberta	3,000,000	28	~ 107,000
British Columbia	4,000,000	24	~ 167,000

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[96] Ministry Organizational Charts 2004/05.

[97] Ministry Organizational Charts 2002/03.

[98] Panel interviews with Alaska Department of Environmental Conservation, Washington Department of Ecology, Oregon Department of Environmental Quality, Alberta Department of the Environment.

To provide a timely, responsive and accountable process, any change to the role of the regulatory agency that administers contaminated sites in the province must involve a full review of funding. This is discussed in section 17.

Recommendations for the Role of the Regulatory Agency

Create a new regulatory agency to manage contaminated sites in British Columbia.

Develop an agency service plan that details the 10 key tasks for which the new agency would be responsible.

Conduct a full review of the funding requirements for the new agency and allocate sufficient funds for its operation.

16 How Do We Encourage the Redevelopment of Brownfield Sites?

Brownfields are those properties left vacant, derelict or under-utilized because of contamination arising from a past use. They may be privately owned, owned by municipalities through property tax forfeiture, owned by trustees in bankruptcy, owned by the Province, or simply been "orphaned" with no apparent viable owner. Brownfields are a detriment to municipalities. Not only are they unsightly, but they represent a loss of tax revenue and, in a few cases, even pose a risk to the environment. Reuse of such sites offers a substantial opportunity to restore environmental quality, enhance the municipal tax base, and present an alternative to the use of uncontaminated "greenfield" sites.

The Panel, with the help of submissions from municipalities, industry and others, identified a number of barriers to the remediation or reuse brownfield sites. These barriers revolve around three key issues:[99]

(i) difficulties with the current process;
(ii) fear of liability;and
(iii) the considerable expense of site remediation.

(i) The Current Process

Current practice actively discourages the use of risk management to remediate contaminated sites even in those cases where risk management is the most environmentally responsible and most economically practical approach. Elsewhere in our report are detailed recommendations that will encourage the use of risk management techniques where appropriate, in large part by relying on the professional judgment of qualified professionals. This may enable many brownfield sites to become useable for non-residential purposes.

(ii) Fear of Liability

Under the present regime, the current owner of a brownfield site is aware that even after remediation to existing standards, there is no guarantee that he or she will not be required to remediate again in the future if the standards themselves change. Industry told us that this is a real concern and quite different from the possibility of being asked to remediate again because new information has come to light.

(iii) Costs Associated with Remediation

In some situations, especially in rural British Columbia, the cost of remediation exceeds the economic value of the land, making remediation and future use of a brownfield site economically unfeasible. Municipalities and other stakeholders need a mechanism for providing economic incentives to ensure the remediation and reuse of such land.

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[99] These issues resonate with similar conclusions in other parts of our report.

Recommendations for Remediating Brownfields

Encourage the use of risk management techniques where the use of the land will remain industrial and there is no threat to human health or the environment.

Amend the liability legislation to ensure that a current owner or a future user of a remediated brownfield site does not have to fear becoming liable for further clean-up should standards change after the date of the sale of the site.

Provide a mechanism for the rebate of property taxes or other economic incentives, where the economic value of the land does not otherwise allow for remediation and redevelopment. Reimburse municipalities from the BC Land Remediation Fund up to 50% of such tax rebates, and strengthen the liability exclusion for municipalities.

Use "seed money" from the BC Land Remediation Fund to encourage the petroleum industry to address the issue of orphan petroleum sites.

At the provincial level, work with the appropriate federal agencies to develop a more cooperative framework for managing contaminated sites and actively participate in and encourage the federal brownfield initiative currently in progress.

Our recommendations are aimed at reducing the barriers to the redevelopment of brownfield sites throughout British Columbia. The Panel was particularly impressed with the progress being made on this issue by the National Brownfields Strategy Taskforce, National Roundtable on the Environment and the Economy. The federal government has been conducting meetings and discussions on the issue of brownfields at a national level. However, because of limited resources, British Columbia's participation in these discussions has been limited.

Although the final report of the taskforce is not yet available, we believe that British Columbia should actively participate in this process. The potential for united policies on the issue at various levels of government supported by federally led income tax incentives is an exciting one. The Panel believes that our recommendations will substantially address the difficulties with the current process and the fear of liability. Cooperation by the Province with the federal government initiatives should overcome the cost concerns associated with brownfield remediation.

Finally, the Panel notes that disused petroleum retailing sites make up the largest number of orphan sites or sites with orphan shares. We hope that the petroleum industry, which has demonstrated a strong corporate responsibility in its ongoing effort to remediate gasoline retail sites, may be willing to enter into a partnership program with the Province to ensure that these orphan sites are dealt with appropriately.

17 What Funding Mechanisms Can Sustain Government's Role in Contaminated Sites?

General revenue funding and the existing Ministry fee structure are inadequate to properly support contaminated site management in the province. This has led to delays in the delivery of Ministry services. The Ministry Service Plan outlines the challenge in sustaining the government's role in contaminated sites - a challenge that must be met without the use of general revenue funds.

The Panel's vision is one of a new, self-sustaining funding initiative that would not only give government oversight and control where appropriate, but also provide the mechanism for government to be an active funding partner in brownfield development, orphan site remediation, Crown land remediation, and domestic and commercial underground storage tank remediation. Active and financial involvement by the government will be a clear sign to public and private enterprises that contaminated sites are a societal issue to be dealt with in an atmosphere of cooperation and partnership.

A Sample of What We Heard from Stakeholders

"The Business Council recognizes that under the Ministry of Water, Land and Air Protection's three-year service plan, current Ministry funding available to deal with contaminated sites matters will essentially disappear.... In general, the Business Council is willing to support moves toward a fee-for-service model in a number of areas of government.... We also see scope for a greater role for industry-sponsored product levies." **Business Council of British Columbia**

"We recommend that the government consider the use of targeted fees, charges or taxes to fund the contaminated sites regime and transfer the costs from the public back to the responsible industries. Appropriate taxes should be levied against specific industries such as petroleum and chemical feedstocks.... We generally agree with the Panel findings that there is a need for some funding." **West Coast Environmental Law**

"One option would be to expand the industry stewardship programs that result in a levy at the point of sale for products that can cause environmental impacts if not managed properly." **Ministry of Water, Land and Air Protection**

"The sources of funding must relate to all industries that deal in substances that contaminate the environment." **Petro-Canada**

"The funding issue is very complex and multifaceted. Having said that, CPPI will partner with the Government to investigate the need for a fund to remediate petroleum contaminated sites or share sites where no responsible party can be found, the responsible party is unable to pay, and/or the site is a municipality owned orphan." **Canadian Petroleum Products Institute**

Many jurisdictions in North America have established dedicated funds that are sustained by levies on products that contribute to contamination. These funds allow governments to conduct a variety of activities, from maintaining staff and infrastructure to overseeing contaminated site remediation and providing financial assistance for remediation initiatives.

Alaska and Washington, for example, fund state activities and initiatives in contaminated sites through taxes on the petrochemical industry. Alaska's Oil and Hazardous Substance Release Response Fund is based on an oil fee of 0.5¢ per barrel of which 40% goes to a Response Account (capped at US$50 million) and 60% to a Prevention Account which supports Department of Environmental Conservation initiatives. In Washington, a 0.7% wholesale tax on petroleum and chemicals provides almost US$40 - $50 million annually which is used to fund state initiatives.[100]

Underground storage tank initiatives are also supported in the U.S. through dedicated State Financial Assurance Funds.[101] The annual revenue generated by these funds is in the order of US$1.34 billion. Forty-eight states have such funds earned from tank and petroleum fees (24 states), petroleum fees only (18 states) or tank fees only (2 states). Four states have capped their funds.

In Alberta, a two year, one-time $80 million funding initiative for orphan underground storage tanks, the Underground Tank Remediation Program, was established from general revenue in 2000.[102]

A number of Canadian federal and provincial studies are concurrently considering government's responsibilities as a polluter, beneficiary and regulator. The recently released report *The Legacy of Federal Contaminated Sites*[103] recommends that the federal government "ensure a source of long-term stable funding" to deal with contaminated sites on federal lands. In British Columbia, the Auditor General has released a report[104] on the government's management of contaminated sites on provincial Crown lands. And one of the five goals of the National Brownfield

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[100] Panel interview with Alaska Department of Environmental Conservation and Washington Department of Ecology.

[101] Information on these funds is compiled annually by the Vermont Department of Environmental Conservation. Data referenced is from the June 2002 update.

[102] Interviews with Canadian Petroleum Products Institute and Alberta Ministry of Municipal Affairs.

[103] Report of the Commissioner of the Environment and Sustainable Development, 2002.

[104] Managing Contaminated Sites on Provincial Lands, Office of the Auditor General of British Columbia, December 2002

Redevelopment Strategy[105] is "to strategically focus efforts on where public investments are needed to make a difference in the future of a brownfield." The strategy is scheduled to be released in January 2003.

Several approaches to funding and sustaining government involvement in contaminated site remediation have been used or are currently under consideration. A valuable body of experience and expertise is available to the Province as options are considered and choices made.

Recommendation for Funding Mechanism

Establish a dedicated trust fund, the BC Land Remediation Fund, by April 1, 2004, to administer, monitor, support and encourage the remediation of contaminated sites in British Columbia.

Discussion of the Panel's Recommendations

We propose that a dedicated funding mechanism be created to support five new Ministry initiatives associated with contaminated sites in British Columbia:

- **Brownfield Development Grant Initiative**
  The Brownfield Development Grant Initiative would enable the Province to actively participate in the remediation of brownfields in rural British Columbia. This initiative could be in partnership with the Ministry of Community, Aboriginal and Women's Services and the Union of British Columbia Municipalities. Such an initiative might also provide the means for a partnered program with the federal government when the National Brownfield Redevelopment Strategy is implemented.

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[105] National Brownfield Redevelopment Strategy Task Force, *Helping to Build Sustainable Communities: A National Brownfield Redevelopment Strategy for Canada* (expected to be released early in 2003).

- **Crown Lands Remediation Initiative**

  The Crown Lands Remediation Initiative would enable the Province to take a leadership role in the remediation of contaminated Crown-owned land. This initiative, involving the development of a government-wide management plan and a corporate perspective on resource allocation decisions, could be in partnership with the Ministry of Sustainable Resource Management.

- **Orphan Site Remediation Initiative**

  The Orphan Site Remediation Initiative would enable the Province to bring parties together and expedite site remediation with active financial participation.

- **Domestic and Commercial Underground Storage Tank (UST) Remediation Initiative**

  The Domestic and Commercial Underground Storage Tank (UST) Remediation Initiative would allow the Province to actively register and remediate USTs throughout British Columbia. This initiative could be in partnership with the petrochemical industries.

- **Regulatory Agency Initiative**

  The Regulatory Agency Initiative would enable the Province to oversee high-risk sites and carry out the other tasks for which it would be responsible (discussed in section 15).

The dedicated fund we recommend be put in place to implement the five Ministry initiatives could be called the BC Land Remediation Fund. We believe it could be established and maintained through a number of sources:

- **Environmental levy on hazardous chemicals**

  Legislation currently exists within the *Social Service Tax Act*[106] for the implementation of such environmental levies. An expedient means thus exists already to establish a dedicated funding mechanism.

- **Tax or industry-sponsored levy on gasoline and diesel fuel**

  At the present time, dedicated taxes on gasoline and diesel fuel[107] exist for the Greater Vancouver Transportation Authority, British Columbia Transit Tax (Victoria), British Columbia Transportation Financing Authority and the British Columbia Ferry Corporation. In addition to these dedicated taxes, a general provincial tax is also applied to fuel sales.

- **Crown Land Special Account (CLSA)**

  This special account - which is part of the General Fund - records revenues to the Province from the lease, sale and management of Crown lands. It is the primary source of funding for the development, marketing, disposition and management of Crown land. Transfer of a percentage of the existing balance and future revenues to a dedicated fund would provide stable, long-term funding. The balance of this special account was $126 million as of April 1, 2002.[108]

- **Underground storage tank (UST), bulk fuel and bulk chemical tank registration and licensing fee**

  No system of UST fees is in place in British Columbia at this time. As discussed above, such registration and licensing fee-based initiatives are the norm in the United States as well as in a number of other Canadian provinces. Along with the introduction of a system of registration and licensing fees, we propose that a regulatory regime consistent with that recommended by the Canadian Council of Ministers of the Environment[109] also be established.

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[106] *Social Service Tax Act*, R.S.B.C.1996, Division 9 Environmental Levies, section 68, environmental levies on hazardous products.

[107] Consumer Taxation Branch Bulletin #099, Tax Rates on Motor Fuels, Revised February 2002, Ministry of Provincial Revenue.

- **Regulatory agency recovery fees**
  An additional source of revenue to the BC Land Remediation Fund - though smaller and far less significant than those listed above – could be recovery fees charged by the regulatory agency for overseeing and reviewing remediation of high risk sites and for other services. Fees for regulatory services must be clear, reasonable and proportionate with the services provided. Standard nominal fees for the issuance of "no further action" letters and the conduct of information searches and site registration could be charged according to a matrix. Market-level hourly rates could be charged when program personnel provide professional services, such as reviewing and commenting on proposed remedial plans for high-risk sites. This mechanism would provide the transparency necessary in fee structure.

Potential future partners for industry stewardship programs and industry-sponsored product levies could include the dry cleaning, wood preservation, pesticide and bulk chemical sectors.

The Panel acknowledges that the challenge in introducing new green taxes or levies is to clearly link the sources of such funding to the contamination generators, contributors and beneficiaries and to use the funding for the active remediation of contaminated sites. The projected annual revenues must be sufficient to support the necessary action. At the same time, a delicate balance must be struck such that the fund is neither too big to be seen as imprudent taxation, nor too little to be effective.

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[108] Province of British Columbia Estimates, Fiscal Year Ending March 31, 2003, Schedule B, Special Accounts – Summary, Ministry of Finance.

[109] *Environmental Code of Practice for Underground Storage Tank Systems Containing Petroleum Products and Allied Petroleum Products*, CCME EPC-LST-61E, March 1993.

We propose that the monies from the BC Land Remediation Fund be distributed to the five recommended initiatives by an independent board. The board would have representation from government (Ministry of Water, Land and Air Protection, Ministry of Sustainable Resource Management, Ministry of Community, Aboriginal and Women's Services, and Medical Health Officers), professional organizations, municipalities, industry and environmental groups.

18 What Role Will Municipalities Have Under the New System?

Municipalities raised a number of concerns with the Panel regarding the current contaminated sites regime.

First, municipalities are key players in the contaminated sites regime. However, their actions, as those of other players, are often motivated by fear of liability. The CSR provides some protection to municipalities where they have become involuntary owners of land.[110] In our view, this needs to be strengthened so as to remove any potential for liability on the part of municipalities other than for pollution that it causes. In particular, municipalities should not be held responsible where contamination has flowed through their rights-of-way or utility corridors to other parcels of land. This will become particularly important under the Province's draft *Community Charter* which will grant ownership of rights-of-way to municipalities.[111] According to the City of Vancouver, it now has "a considerable number of examples where substances migrating from another site and through city street property have contaminated adjacent properties." The Province, through the trust fund mechanism we describe in section 17, would assume this liability where no viable responsible person can be identified. In return, municipalities would be prevented from creating their own contaminated sites regulations.

The second concern brought to the attention of the Panel was that the CSR currently provides for notice only to adjacent landowners where a site is to undergo remediation. We believe this notification should be extended to include owners (usually municipalities and utilities) of rights-of-way and utility corridors.

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[110] Section 28.6 of the CSR.

[111] Currently, only the City of Vancouver owns its own streets.

A third concern involves the relocation of contaminated soil. This has become a contentious issue for municipalities. Under the draft *Community Charter*, municipalities are to control "the removal of soil and the deposit of soil or other material" in their jurisdictions. Because the proposed new regime will encourage risk management of lower category sites, we expect that less "dig and dump" remediation will take place at these sites. However, in situations where removal of contaminated soil is the appropriate remedial strategy for a particular site, the Panel suggests that a protocol be developed with municipalities to ensure that such removal can take place. As we discussed in section 10, there is a need to encourage the construction in British Columbia of disposal and treatment facilities equipped to accept various types of contaminated soils.

A final concern among municipalities is the fear of liability that might result from their involvement in any brownfield lands within their boundaries. Effective remediation and redevelopment of brownfield sites will only occur if such liability is eliminated. Furthermore, remediation and redevelopment of brownfields requires an effective partnership between the Ministry and municipalities. In section 17, we recommended the establishment of the BC Land Remediation Fund to support key Ministry initiatives associated with contaminated sites in British Columbia. This trust fund could be used to reimburse municipalities, at least in part, for property tax rebates granted to encourage the private sector to remediate and redevelop brownfield sites rather than using uncontaminated "greenfield" sites. Other economic incentives may also be employed in those situations in rural areas where a municipality itself has become the reluctant owner of a contaminated site.

Recommendations for the Role of Municipalities

Strengthen the statutory protection for municipalities against liability for contaminated sites other than for contamination it causes.

Broaden the site remediation notification requirement to include, in addition to adjacent landowners, owners of rights-of way and utility corridors that may be impacted.

Develop a protocol with municipalities to allow for the removal and relocation of contaminated soil where necessary. Encourage the construction of facilities in the province, equipped to treat and dispose of various types of contaminated soils.

Create a mechanism whereby municipalities can access the proposed BC Land Remediation Fund to defray costs associated with incentives (e.g., the granting of property tax rebates) to encourage the private sector to remediate or redevelop brownfields.

Prevent municipalities from introducing their own regulations relating to contaminated site remediation, including the transfer of soils.

19 What Initiatives Can Help Existing and Prevent Future Contaminated Sites?

This section discusses:

(i) the role of strong environmental protection legislation and effective enforcement in preventing additional contaminated sites from being created in the future;
(ii) the potential to develop industry specific solutions to deal with historical contamination and to minimize future contamination; and
(iii) the initiatives industry should undertake to prevent future contamination.

(i) The Role of Environmental Protection Legislation

Some stakeholders expressed concerns that any change to the existing contaminated sites regime would strip the Province of its ability to prevent additional sites from becoming contaminated in the future and, therefore, result in greater environmental harm. In the Panel's view such concerns are unfounded. The contaminated sites provisions of the Act and CSR are not primarily focused on controlling activities or substances that may cause additional contamination from occurring. Rather, they focus on remediating and allocating responsibility for existing contaminated sites. Most other provisions in the Act, as well as other provincial and federal legislation, contain provisions directly aimed at controlling current activities, prohibiting polluting substances from being released, and preventing or responding to spills. For example, the Act contains provisions prohibiting the introduction of waste into the environment and mandating spill reporting and spill response.[112] It also allows regulatory officials to issue orders to prevent future pollution or abate ongoing pollution.[113] In addition, at the federal level, the *Fisheries Act* and the *Canadian Environmental Protection Act, 1999* contain provisions aimed at preventing polluting substances from being released.[114] Legislation containing environmental protection provisions, as well as effective enforcement of these provisions, is the mechanism that prevents new contaminated sites from being created.

(ii) Industry Specific Solutions

There are a number of specific industry sectors in the province, including the petroleum industry, dry cleaners, wood preservers, metal finishers and home heating fuel retailers, that could play a key role in developing sector-specific solutions to address historical contamination and minimize future contamination. The Panel recommends that the regulatory agency and each specific industry sector work together to develop partnership agreements to produce quick, reasonable and cost-effective approaches to site management and remediation that all parties understand and endorse. The private sector should be encouraged to bring forward initiatives to help streamline the existing process over the transition period to a new provincial contaminated sites regime.[115]

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[112] See sections 3 to 12.1.

[113] See sections 31 and 33.

(a) Petroleum Storage Tanks

The Panel suggests by way of example, a partnership between the regulatory agency, petroleum industry and municipalities to facilitate the remediation of petroleum storage tanks and redevelopment of brownfield sites.

Contamination associated with leaks from petroleum storage tanks is the key contaminated sites problem in British Columbia - over 60% of the contaminated sites in the Province are associated with leaking petroleum storage tanks. Apart from provisions in the *British Columbia Fire Code*, the Province lacks a regulatory framework or strategy for identifying, registering, managing, decommissioning and remediating commercial and household underground storage tanks. Furthermore, the remediation and redevelopment of petroleum storage tank sites is often problematic under the existing contaminated sites regime. Municipalities often impose more stringent requirements than those required under the contaminated sites legislation. As a result many sites are not remediated and redeveloped. Small owner-operators facing the prospect of significant remedial costs may decide to continue operating rather than address contamination issues associated with leaking underground tanks.

A Sample of What We Heard from Stakeholders

"I would look forward to working with the petroleum industry and municipalities to allow petroleum sites to be remediated and redeveloped expeditiously." **Imperial Oil**

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[114] For example section 36 (3) of the *Fisheries Act* prohibits the deposit of a deleterious substance into water frequented by fish or into fish habitat that supports a commercial fishery.
[115] See sections 3 to 12.1 of the Act.

"The CPPI strongly supports the development of a partnership with the Government to develop a better process for management of underground storage tanks and contaminated petroleum sites. It must be recognized that CPPI does not represent the entire industry and we recommend that CPPI and Government work together to find ways to include other industry participants." **Canadian Petroleum Products Institute**

A partnership between the Province and the petroleum industry might lead to the development of:

- industry partnership agreements for the efficient remediation of petroleum storage tank sites;
- industry partnership agreements regarding soil removal;
- funding mechanisms based on petroleum levies for brownfield redevelopment;
- a process for communicating and resolving problems that arise in one context so that they do not reoccur elsewhere; and
- a comprehensive regulatory framework for identifying, registering, managing, decommissioning and remediating commercial and household underground storage tanks.

Individual petroleum companies have extensive knowledge of and experience relating to all of the above issues, and a cooperative program will result in more effective and efficient site assessment and remediation. The Canadian Petroleum Products Institute has indicated it would support an initiative to require the licensing of all underground storage tanks, as is the case in virtually all other provinces. This licensing could carry an annual fee, which would then be available through the BC Land Remediation Fund for activities such as the remediation of orphan sites. Incentives, by way of lower fees, would be available to encourage replacement of older tanks not meeting current CCME standards.

A Sample of What We Heard from Stakeholders

"The funding issue is very complex and multifaceted. Having said that, CPPI will partner with the Government to investigate the need for a fund to remediate petroleum contaminated sites or shares of sites where no responsible party can be found, the responsible party is unable to pay, and/or the site is a municipally owned orphan. It must be very clear that CPPI does not support a funding program that "taxes" our industry to fund the remediation of non-petroleum contaminated sites nor a program that funds the costs of upgrading storage tank systems.... If it is determined there is a need for a petroleum segmented fund, then CPPI recommends the funding mechanism be fee related to the number and condition of petroleum storage tanks." **Canadian Petroleum Products Institute**

Such a program could also be developed to address contamination issues associated with domestic underground storage tanks.

(b) Other Industry Sectors

Working partnerships between the regulatory agency and other key industries (including dry cleaners, wood preservers, metal finishers and home heating fuel wholesalers) to address industry-specific contaminated sites issues should also be encouraged. The development of such industry-specific approaches will lead to more effective and efficient site assessment and remediation and foster a high degree of confidence for all stakeholders that contaminated sites issues are been properly addressed.

(c) Mining Industry

The Panel heard specific concerns from stakeholders about the application of the current contaminated sites legislation to the mining sector. One issue was the unnecessary duplication and lack of consistency between the closure and reclamation requirements in the *Safety, Health and Reclamation Code for Mines in British Columbia* under the *Mines Act* and the contaminated site requirements under the *Waste Management Act* and the CSR (inconsistencies that were not resolved by the May 9, 2002, amendments). Some stakeholders suggested that the Ministry of Energy and Mines should be the lead agency on all mining sites; the Ministry of Water, Land and Air Protection should be involved only where specific environmental issues not relating to metals arise (for example, where the issue involves problems with fuel storage). In addition, stakeholders requested that the officials within the Ministry of Water, Land and Air Protection dealing with the mining sector understand mining issues. We agree.

A Sample of What We Heard from Stakeholders

"MEM is contemplating a system of exit tickets under the Mining Act for mine owners and operators based on specific criterion and would like to see a complementary system under the WMA that would be applicable to mines….

"MEM supports immediate changes specifically related to industry initiatives and outstanding issues related to the regulation of mines and liability provisions, initiatives relating to encouraging utilization of Brownfield sites, and streamlining and rationalizing Federal regulatory requirements related to environmental management." **Ministry of Energy and Mines**

"Mines Sites should be exempt from the requirements of the CSR except for off site contamination since site closure is already regulated by MEM (i.e., a compliance boundary model). The *Waste Management Act* (WMA) somewhat recognizes this through the definition of "core" and "non-core" areas. However, it is not clearly determined which ministry will take the lead role in the decommissioning process. For example if MEM is responsible for core areas with large quantities of mining related wastes why would MWLAP be responsible for the plants which contain very small amounts of similar waste? MEM personnel are familiar with mining wastes, chemicals and hydrocarbons; they should manage closure and decommissioning for core and non-core areas…. Soils on mine sites should be exempt from relocation agreements if they are native to the site or materials produced during the mining operation…. Mine site decommissioning and closure should be exempt from MWLAP approval of remediation plans since another ministry regulates it. Comments from MWLAP can be made via MEM." **Teck Cominco Metals Ltd., Kimberly Operations**

Finally, some stakeholders also raised the issue of the "wide area site" provision in the current legislation, and called for some way of dealing with a group of properties contaminated by a common contaminant.

A Sample of What We Heard from Stakeholders

"We believe that in order for the Trail area environment to be addressed effectively and efficiently, either the Wide Area Site provisions must be retained or an alternate mechanism for dealing with groups of properties affected by a common contaminant source must be developed. A "contractual agreement" between responsible party, local community and Province could be an effective means of dealing with our specific situation. Such an agreement would have the added benefit that it could address both ongoing and historical smelter emissions, whereas presently the ongoing emissions are addressed through Waste Management Permits and historical emissions area addressed under the Contaminated Sites Regulation. Any such alternate mechanism must be enabled by legislation and must be guided by provincially accepted principles of risk assessment and risk management." **Teck Cominco Metals Ltd., Trail Operations**

"When an uncontaminated portion of land is to be subdivided from a large parcel of land where only a portion of the parcel is contaminated it should be recognized that the uncontaminated portion need not require full CSR investigation. If the remaining land is uncontaminated this should allow the land to be subdivided." **Teck Cominco Metals Ltd., Kimberley Operations**

"There are opportunities within the Waste Management Act and/or the Environmental Management Act that could provide for Contractual Agreements as a means of managing complex sites through partnership arrangements between company, community and agencies. Trail has shown how this can work in practice. I propose that a formal Contractual Agreement option be explored as an alternative to the WAS (wide area site) as a more appropriate vehicle for allocating responsibilities and liabilities for large, complex sites such as Trail. In the case of Trail, this approach would have the added benefit of combining the contamination aspect with the ongoing operational aspects of the smelter, thus addressing the preventative goal.... Trail offers an ideal situation to pilot such an initiative". **Graham Kenyon, Independent Consultant**

"City would prefer to avoid the Wide Area Site designation if studies currently underway by Teck Cominco provide that the soil contamination is not a significant risk to human health or the environment despite the fact the substances in the soil exceed the regulatory standard.... If the

City of Trail is to be designated a Wide Area Site under the revised Regulation, it would be unacceptable to have individual properties in the Wide Area Site listed on the Site Registry."
City of Trail

We believe that if the Ministry adopts the model we are proposing for managing contaminated sites, there should no be a need to distinguish between a wide area site and other contaminated sites. The new model focuses on the risk and the source of contamination rather than on legally defined property boundaries or wide area site boundaries. Only those areas where the contamination poses an unacceptable risk to human health or the environment would be considered a contaminated site under our recommended model.

(iii) Industry Initiatives

In addition to industry-specific initiatives for addressing contaminated site issues, the Panel strongly supports other initiatives that will reduce the possibility of contamination occurring in the future. Company-specific environmental management programs are standard in many, but not all, industry sectors. We encourage such programs for those without them. A key focus of these environmental management programs should be on improving chemical and product management. For example, users of bulk quantities of chemicals could be subject to common design, operation and inspection requirements, similar to those being implemented at wood preservation facilities throughout Canada. (By 2005, all wood-preserving operations in Canada must implement certain design aspects at their facilities – such as double containment for all storage tanks and process areas and monitoring systems for early detection of leaks - as well as certain operational procedures such as periodic monitoring of surface water, ground water and soil.)[116]

We encourage all industries to develop and implement environmental management plans requiring continual improvement, through mechanisms such as ISO 14000 and pollution prevention planning. The Panel supports the British Columbia Pollution Prevention Planning Implementation Advisory Committee's recommendation (made in July 2001) advocating the broader use of pollution prevention planning by industry, as well as the committee's view that "continual improvement" be adopted at operational facilities to prevent future contamination.[117]

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[116] Environment Canada, 1999. "*Strategic Options for the Management of Toxic Substances –Wood Preservation Sector.*" Available at http://www.ec.gc.ca/sop/wood-bois/pubs/pub_e.htm
Also see: http://www.ec.gc.ca/toxics/en/index.cfm for description of the Toxic Substances Management Policy, the Strategic Options Process and the Canadian Environmental Protection Act.

Recommendations for Initiatives to Resolve Existing and Prevent Future Contamination:

Maintain and enforce strong environmental protection legislation to minimize environmental harm and prevent new contaminated sites.

Encourage partnerships between the regulatory agency and specific key industries to develop codes of practice for chemical and product management and industry-specific site assessment and remediation, including a partnership between the regulatory agency and the petroleum industry to address problems associated with petroleum storage tanks.

Address the statutory overlap and inconsistencies relating to mine closure and remediation requirements and appoint a lead ministry responsible for mine closure, decommissioning and remediation issues.

Encourage the greater use of environment management systems.

20 What Changes Should Be Implemented Immediately?

Regulatory and legislative changes take time and require careful consideration. The Ministry plans to implement such changes in the spring and summer of 2003. However, there are several actionable recommendations in this report that can be implemented before then, through changes in Ministry policies, procedures and practices. In particular, the Panel supports immediate changes to the procedures of the Roster of Professional Experts and to the Ministry's structure and resources. These changes will bring benefits now.

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[117] Pollution Prevention Planning Implementation Advisory Committee, 2001. *"Recommendations for Implementing Pollution Prevention Planning for Large Industry in British Columbia."* http://wlapwww.gov.bc.ca/epd/epdpa/industrial_waste/pollution_prvntn/ipphome.html

(i) Roster of Professional Experts

The Panel believes that procedural change to the Roster of Professional Experts can address some of the current problems associated with limited public and private resources. These changes would set the transitional stage for the implementation of the Licensed Environmental Professional (LEP) system.

A Sample of What We Heard from Stakeholders

"We recognize that there is a problem with the low numbers of Rostered professionals being qualified. We feel that this is reflective of the unduly stringent certification process, rather than the professional pre-qualification requirement." **Chevron Canada Limited**

"A screening tool is needed to distinguish high risk sites from non-high risk sites. The risk ranking formula currently prescribed in Protocol 6 is not considered adequate for this purpose. Provisions to identify sites as high risk sites beyond a simple ranking system are warranted. Results of a source-pathway-receptor analysis could be considered as the basis for sound, defensible means of determining the risk level at the site." **Ministry of Water, Land and Air Protection**

A key problem in the existing contaminated sites administration and management is a lack of staff and resources in the public sector. The current procedure[118] for the Roster of Professional Experts has led to a small membership focused in the Lower Mainland. There are several reasons for the low level of recruitment to the Roster.

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[118] Procedures for the Roster of Professional Experts under the Contaminated Sites Regulation, Ministry of Water, Land and Air Protection. April 2002.

First, the Roster candidates are limited to those registered by the Association of Professional Engineers and Geoscientists of British Columbia (APEG) and the British Columbia Institute of Agrologists (BCIA). Other professionals who play a major role in site investigation are excluded. Interim solutions to overcome this barrier must be found while an independent board to oversee a self-governing LEP system is being created.[119]

Second, the Roster examination and certification process poses a number of problems, including – as noted in a review[120] by a sub-committee of the Roster Steering Committee - inadequate time to complete the examination, ambiguity of questions, and a high failure rate even by well-trained and experienced individuals. We believe that any new examination process should:

- focus on key principles for site assessment and remediation;
- recognize that the policy, procedures and practices of the Ministry are guidance rather than law; and
- not be biased toward a specific sector of site assessment and remediation.

Meanwhile, until the proposed LEP system is implemented, the certification and testing procedures should be changed to provide for a fair process that would encourage more qualified professionals to become Roster members

Third, several concerns have been expressed regarding the perceived conflicts of interest associated with Roster members reviewing the work of colleagues in their own company. Until the LEP system is implemented, the potential for such conflicts must be addressed, through, for example, an independent audit process.

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[119] See section 8.

[120] Discussion Paper: Qualification Requirements for the Contaminated Sites Roster of Professional Experts, July 2002. Sub-Committee of the Contaminated Sites Roster Steering Committee.

Another problem with the Roster is that the audit process for member decisions is extremely rigorous and prescriptive, even for low-risk sites. There is no latitude in the process for a Roster member to exercise professional judgment in making review decisions. Removal from the Roster can have severe professional business repercussions for the professional.[121] A restructuring of the audit process is necessary, in our view, with consideration given to both the frequency of audits and the opportunity for external auditors to carry out the audits.

Current restrictions[122] on the types of reviews that Roster members can carry out severely limits the number of sites that do not require reviews by Ministry staff. Until the LEP system is established, the Panel recommends that Roster members be allowed to review Category I to III sites (as defined in section 6). Roster members have years of professional experience relating to contaminated sites and should, we believe, be given an expanded role as qualified professionals in the management of contaminated sites. This would allow for a more timely review of new applications under the current process, as well as enabling existing applications in Ministry offices to be reviewed by Roster members. And changes in policies, procedures and practices would allow Roster members to use professional judgment in their reviews.

Recommendations for Immediate Changes in Policies, Procedures and Practices Affecting the Roster

Revitalize the examination and certification process to encourage more active participation in the Roster system by qualified professionals throughout the province.

Ensure adequate funding for the independent preparation, invigilation and marking of examinations.

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[121] To date, two members have been removed from the Roster as a result of an audit or unsatisfactory performance of work.

[122] Protocol 6: Independent Remediation for Low to Moderate Risk Sites: Extent manager may rely on statements by qualified professionals, Ministry of Water, Land and Air Protection. 19 July 1999.

Renew the procedures for the Roster of Professional Experts, particularly with respect to expanding eligibility to qualified professionals in other relevant fields.

Recognize the role of professional judgement when conducting audits of Roster decisions.

Address perceived conflict-of-interest problems.

Enable Roster members to conduct a broader range of site reviews by modifying Protocol 6 to reflect the Panel's recommendations for site categorization.

Develop the LEP process without delay.

(ii) Ministry structure and resources

A Sample of What We Heard from Stakeholders

"The Business Council recognizes that under the Ministry of Water, Land and Air Protection's three-year service plan, current Ministry funding available to deal with contaminated sites matters will essentially disappear." **Business Council of British Columbia**

"Baseline regulatory functions must be maintained by government." **West Coast Environmental Law**

"Currently there is a lack of consistency in the interpretation of Ministry policy and protocols.... The various Ministry Regional Offices interpret protocols differently." **BC Buildings Corporation**

Essential elements of the separate and unique regulatory agency and new organizational structure we recommend in section 15 can be established without requiring immediate legislative or regulatory change. Structural changes to the

Ministry's contaminated sites unit should be implemented during the current fiscal year to begin the work of building a new regulatory agency and a new culture within the Ministry.

Clearly, the current contaminated sites unit is underfunded and under-resourced to meet its current mandate, and these pressures will increase as the organization moves towards its future mandate as proposed by the Panel. Increased base funding must be allocated to the program in the next two fiscal years to enable the Ministry to effect organizational, process, legislative and regulatory change (while still operating under the current legislative and regulatory system and striving to improve service to both its clients and the public).

Recommendations for Immediate Changes in Ministry Structure and Resources:

Establish a new unit within the Ministry structure that provides for consistency in process and decision-making.

Provide sufficient financial and staff resources from base funding for the fiscal years 2003/04 and 2004/05 to adequately support the 10 main tasks of the new regulatory agency (outlined in section 15).

Appendix I

Jurisdiction	"Contaminated site" definition
British Columbia	s.26 (1) An area of land in which the soil or any groundwater lying beneath it, or the water or underlying sediment, contains (a) special waste, or (b) another prescribed substance in quantities or concentrations exceeding prescribed criteria, standards or conditions. ***Waste Management Act***
Alberta	s.125 (1) Where the Director is of the opinion that a substance that may cause, is causing or has caused a significant adverse effect is present in an area of the environment, the Director may designate an area of the environment as a contaminated site. s.1(a) "adverse effect" means impairment of or damage to the environment, human health or safety or property. ***Environmental Protection and Enhancement Act***
Saskatchewan	s.2(e) "contaminated site" means an area that is designated or re-designated as a contaminated site by the minister pursuant to section 11. s.11 (1) If the Minister is of the opinion that a substance that may cause, is causing or has caused an adverse effect is present in an area, the minister may designate that area as a contaminated site. s.2(a) "adverse effect" means impairment of or damage to the environment, or harm to human health, caused by one or any combination of any chemical, physical or biological alteration. ***Environmental Management and Protection Act, 2002***
Manitoba	s.2 "contaminated site" means a site so designated under subsection 7(1). s.7 (1) If the Director determines, having regard to any current, permitted

	or foreseeable use of a site, that the site is contaminated at a level which poses or may pose a threat to human health or safety or to the environment, the director shall by written order designate the site as a contaminated site….. ***Contaminated Sites Remediation Act***
Ontario	No definition of "contaminated site". However, pursuant to section 17, any person who has caused or permitted the discharge of a contaminant can be ordered to remediate the contamination. Pursuant to section 18, any person who owns or owned or who has or had management or control of an undertaking or property that is or is likely to contaminate other property, can be ordered to investigate and take preventative steps, or remediate the contamination. ***Environmental Protection Act***
Quebec	No definition of "contaminated site". However, pursuant to s.31.43, where it appears to the Minister that contaminants are present in the land in a concentration exceeding the limit values prescribed by a regulation made under section 31.69, or that the contaminants, even though they are not determined in the regulation, are likely to adversely affect the life, health, safety, welfare or comfort of human beings, other living species or the environment in general, or to be detrimental to property, the Minister may issue an order to any person requiring, among other things, the clean-up of the sit e. **Bill 72** – ***An Act to the Environment Quality Act*** (not yet inforce)
Atlantic Provinces	All four Atlantic provinces have implemented the Atlantic Risk Based Corrective Action (RBCA) process along with their own legislation and guidelines. The RBCA is based on risk management where the risks posed by the contaminants are assessed as well as the likelihood that people or the environmental resources could be harmed by the contaminant.
New Brunswick	No definition of "contaminated site". However, pursuant to s.54(g) the Minister may issue a Ministerial Order requiring any person who releases a contaminant into the environment to, among other things, cleanup the

	contamination. ***Clean Environment Act***
Nova Scotia	5.3(l) "contaminated site" means a site designated as a contaminated site by the Minister pursuant to this Act. s.87 (1) Where the Minister is of the opinion that a substance that may cause, is causing or has caused an adverse effect is present in an area of the environment, the Minister may designate the area of the environment as a contaminated site. The Minister shall follow standards, criteria or guidelines established or adopted by the Department before making a designation pursuant to subsection (1) ***Environment Act***
Prince Edward Island	No definition of "contaminated site". However, pursuant to s.21(1), the Minister may order any person who without permission discharges or causes or permits to be discharged, a contaminant into the environment, or who owns or has control of the discharged contaminant to, among other things, repair, restore and remedy the environment or to confine or contain the effects of the contaminant. ***Environmental Protection Act***
Newfoundland	s.2(i) "contaminated site" means a site designated a contaminated site by the minister under section 26. s.26(1) Where the minister is of the opinion that a substance that may cause, is causing or has caused an adverse effect is present in an area of the environment, the minister may designate that area of environment as a contaminated site. (2) The minister shall establish standards, criteria or guidelines with respect to contaminated sites before making a designation under subsection 4). ***Environmental Protection Act, 2002***
Yukon	s.111 "contaminated site" means an area of land in which the soil, including any groundwater lying beneath it, or the water including the sediment and bed below it, contains a contaminant which is in an amount, concentration or level in excess of that prescribed by regulation or allowed under permit. ***Environment Act***
Alaska	A complex process of site designation is used with significant reliance on risk assessment. Sites are initially evaluated by use of defined "cleanup

	levels". The Department of Environmental Conservation may waive designation requirements for cleanup if: containment or cleanup is technically not feasible; or containment or cleanup will cause a greater threat to human health, safety, or welfare or in greater damage to the environment than the discharge or release itself.
Oregon	A risk based evaluation process is used to define if a "hazardous substance is present at a concentration that the contaminant poses a threat or potentially unacceptable risk to public health, safety or welfare or the environment considering" factors such as toxicological characteristics, migration, background level, frequency of detection, and degradation. "Cleanup levels" are defined and are used for initial screening to define suspect sites.
Washington	Upon identification of contamination (based on cleanup levels) a report to the Department of Ecology is to be made along with best professional judgment in deciding whether a release may be a threat or potential threat to human health or the environment. Within 90 days the state on the basis of the provided information is to determine if the site is to be placed on a hazardous sites list.
U.S. EPA	CERCLA does not contain an explicit definition of "contaminated site". The Act is based largely on orders and response actions, which are often connected to a level of risk posed by a particular site.

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